THE AUTOMOBILE

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CLASS
No.

Cleveland's Motor Vehicle Activities.

WHILE the cars in the Reliability Test Run organized by the Automobile Manufacturers' Association pursue their prescribed course from town to town, the eyes of progressive Americans in general will eagerly follow their progress with a view to deriving some intelligent and impartial idea of the relative merits of different forms of manufacture. In this respect their attention is likely to be arrested more than ordinarily when the Forest City on the Lakes shall be reached, for here, where a large proportion of the contestants are at home and have their associates who are responsible for merits and demerits of the respective cars, the discussion or exchange of ideas, which is one of the most enjoyable features of a successful contest, will no doubt run high and warm, and it may be predicted that the popular as well as the technical interest in the objects of the long run will be merged on this occasion in a more comprehensive interest in all that has been achieved to advance automobilism in the city which is not only the principal city of transit during the Run, but also, so to say, the capital of motor vehicle manufacture in the United States.

For these reasons it is deemed opportune at this moment to present a synopsis of the industrial situation in Cleveland as a means for enabling the participants in the contest to utilize their brief stay to the best advantage and, on general principles, as a matter of intrinsic interest to all who follow automobile affairs.

In development of the automobile and in contributing to its national popularity.

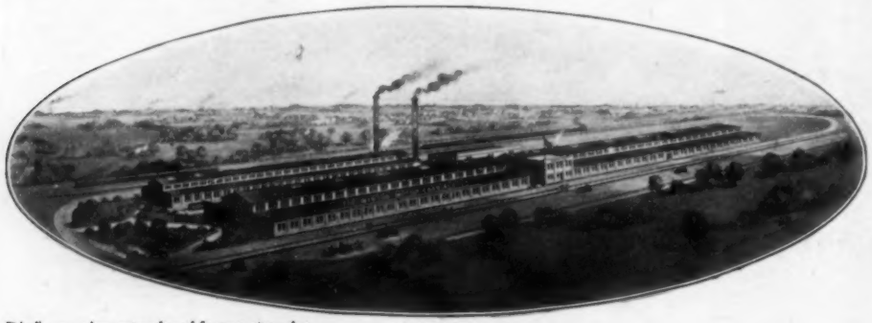
Winton Garage and Sales Depot.
Interior of Ohio Motor Car Co. Garage.

Cleveland Auto and Supply Co. Garage.
Interior Oldsmobile Garage and Repair Station.

THE WHITE GARAGE, CONTROL AND STORAGE STATION FOR CARS IN ENDURANCE RUN, OCTOBER 13-14.

the city of Cleveland early took an advanced position and has maintained it with increasing prominence.

This is largely due to the fact that some of the pioneers in automobile building were residents of that city, where their experiments were eagerly watched and their achievements were applauded with a spirit



Bird's eye view reproduced from a drawing.

THE WINTON MOTOR CARRIAGE FACTORY AND RACE TRACK.

born of local pride. To the people of Cleveland the automobile of American manufacture had become recognized as a machine of practical utility when in many parts of the country it was being only vaguely considered as a theory. The first few manufacturers who had engaged cautiously in its production were unable to keep pace with the unexpected demand which followed.

As a result, the number of automobile factories increased steadily until the city stood unrivaled in the number and diversity of plants devoted to turning out complete machines and the manufacture of their separate parts.

And in respect to the number of automobiles owned and used by her citizens, Cleveland undoubtedly outranks any city of its population in this country.

On September 2 the official records showed licenses issued for 1,010 automobiles. Of this number the gasoline machines had to their credit 607; steam, 237, and electric, 166. In addition, licenses had been issued to operate 11 motor cycles, increasing the total to 1,021. When it is taken into consideration that nearly two-thirds of this number were purchased and placed in service within the past year, and that during the preceding month alone 85 had been added to the list, some idea can be had of Cleveland's acceptance of the automobile in preference to the horse as a more desirable means of travel both for utility and pleasure.

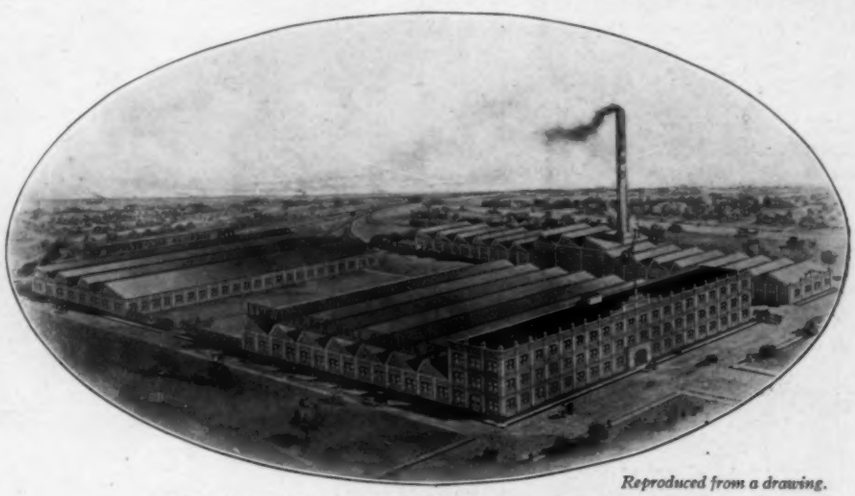
To Cleveland's mechanics honor is due for the highly practical character of their products, and still greater achievements are sure to follow in the wake of so much endeavor.

The outward showing of Cleveland's activity in motor vehicle work is just now beginning to be made. That is, while the output of factories and shops has been considerable and has been distributed widely over all of the United States, from ocean to ocean, and has even been accepted abroad, the buildings in which this great amount of work has been done, have not as a rule been of an imposing nature. Little wood-frame structures have been crammed full of valuable machinery and skilful machinists, until the demand for the product absolutely compelled the erection of more suitable and spacious brick buildings with ample grounds. From the accompanying illustrations it will be seen that there is still much to be done before the housing of the automobile industry in Cleveland will reflect the magnitude and importance of its position among the city's other industries, but it will also appear that when the necessary steps are finally taken by each concern they result in such plants as betoken perfect faith in the future of the automobile movement. And at the present time plans are under way by the consummation of which many companies will soon be installed in new quarters built specially for their needs and enabling them to keep pace with the demand for their products. Buildings like those where the Winton manufacture is now carried on, the White Company's new garage and testing station, the Baker Company's compact plant and the American Ball Bearing Company's almost-finished structures, constitute a presage of what the automobile industry will mean for Cleveland when all the other companies in need of increased manufacturing facilities shall have carried out their present intentions.

A list of the firms or corporations in Cleveland, whose business has grown out of the automobile movement and who are identified with the motor vehicle industry and commerce more than with any other branch of work, comprises, in alphabetical order, the following:

CLEVELAND AUTOMOBILE FIRMS.

American Ball Bearing Co., bearings.
American Motor Carriage Co., gasoline motor vehicles.
Automobile Garage and Repair Co., garage and agency
Baker Motor Vehicle Co., electric vehicles.
Berg Automobile Company, chassis for gasoline motor vehicles.
Brew & Hatcher, designers and contractors.
Bullock-Beresford Co., ignitors for gasoline vehicles.
Cleveland Automobile Co., gasoline motor vehicles.
Cleveland Motor Co.
Cleveland Automobile and Supply Co., garage and agency.
Diamond Rubber Tire Co., branch.
Elwell-Parker Electric Co., electric batteries.
Federal Mfg. Co., component parts.
Gaeth, Paul, gasoline motor vehicles.
General Automobile and Mfg. Co., gasoline motor vehicles.
Geneva Automobile Company, branch store.
Goodrich, B. F., Tire Co., branch.
Hansen Car Company, wood bodies for motor cars.
Hartford Rubber Works Co., branch, and G & J tire agency.
Hoffman Automobile & Mfg. Co., gasoline and steam cars.
Hussey Drop Forging and Mfg. Co., drop forgings.
Krastin Automobile Co., gasoline motor vehicles.
Mueller, L. J., Company, motorcycles and jobbers of material.
Otto Konigslow, gasoline motor vehicles.
Ohio Motor Car Co., garage and agency.
Olds Motor Works, garage and agency.
Peerless Motor Car Co., gasoline motor vehicles.



Reproduced from a drawing.

AMERICAN BALL BEARING COMPANY'S NEW FACTORY.

Russell Motor Vehicle Co., gasoline motor vehicles.
Standard Welding Co. wheel rims and other welded parts.
Star Aato & Mfg. Co., gasoline motor vehicles.
Stearns, F. B., Company, gasoline motor vehicles.
White Sewing Machine Co., automobile dep't., steam vehicles.
Winton Motor Carriage Co., gasoline motor vehicles.

Later in this article mention is made of a number of other firms who are not exclusively identified with the automobile movement, but are closely allied with the industry and whose importance for its progress in several instances is fully equal to that of the automobile manufacturers, save the largest; and an enumeration is

also given of other firms with whom attention to automobile products is a more or less important side issue.

The effect of this great array of wealth and ability aligned in favor of automobiles has made a deep impression upon public opinion in Cleveland. Probably there is no city on this continent where adverse remarks and carping criticism with regard to motor vehicles is more rarely heard than here. Everybody seems to understand fully that to mechanical locomotion belongs the future and that the sooner it may be realized in all its possible forms the better it will be for all. And while many are individually opposed to automobile racing, at least to the extent of not being interested therein, they recognize that racing events play a role in keeping the public mind occupied with motor matters and facilitating the general introduction of motor cars for more utilitarian purposes.

Garages Few in Number.

Garages or storage stations which form such a prominent feature in the automobile life in New York, Philadelphia, Boston and Chicago, are not to the same extent the measure of activity in Cleveland. They are neither so large nor so well patronized by owners of motor cars, and this is evidently due to the easy accessibility of the numerous factories which here take their place, so far as repair facilities are concerned, and also to the fact that the majority of automobile owners live in private residences where storage room may be readily provided for any desired number of cars. And yet the White Sewing Machine Company's garage is said to be the only control station between New York and Pittsburg where all the cars participating in the Reliability Run may be brought under roof.

The Faces of the Men.

Many of the best known business men connected with automobile industry and trade are too-modestly averse to allowing the publication of photographs showing their lineaments to the world at large and even shrink from all statements regarding themselves, their attainments and experiences. But the world insists on being interested in these things, holding justly that the man behind the money is the more important factor of the two, and that knowledge of the size and character of a manufacturing plant even though coupled with insight in the qualities of the product, still leaves a void in the judgment that men like to form on such subjects, a void which can be fully supplemented only by personal acquaintance with the man or men who have organized the plant and make the money work. For this personal acquaintance the photograph and the personal data are the only available substitute, and while not sufficient it is generally conceded to be better than nothing. Regretting its inability on this occasion to secure likenesses of all who are prominent in the automobile life in Cleveland The Automobile presents engravings of a few, and brief personal data in regard to a still smaller number, and trusts that the noble reluctance against this form of publicity will be modified in the future, so as to give way on the rare occasions when there is legitimate use for it while yet remaining as a mark of distinction from others more promiscuously disposed.

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On the following pages brief data are presented in regard to each of the firms listed above, and their products.

BIRD'S-EYE VIEW OF CLEVELAND AT THE PUBLIC SQUARE.

American Ball Bearing Co.

Owing to the weight of propelling machinery and the supplies which must be carried, automobiles would of necessity be heavy draft vehicles were it not for the reduction in friction which has been accomplished by ball-bearing devices. In fact, the adoption of ball bearings previous to any extensive efforts at automobile building contributed very largely toward bringing road machines into practical use. The front and rear axles, carrying the weight of the machines, bodies and their loads, the hubs, thrust bearings, steering axles, clutches, brakes, and every other part of the mechanism where contact in motion cannot be eliminated, are provided with ball bearings for minimizing friction and reducing the power necessary to operate and control.

The American Ball Bearing Company occupies a prominent position in this branch of automobile equipment. The company has been engaged in this line for over seven years. The recent rapid growth in motor vehicle industry brought out the axle plans and other features which have been so generally adopted largely as a result of suitable designing by Mr. W. C. Baker, president of this company. Eleven different sizes of axles are now made to supply different automobile manufacturers.

The company is erecting three large buildings at Seward and Lakeside streets, and with a fourth building, also under contract, will soon have a factory floor space of more than 100,000 square feet as an increase in their facilities for making ball-bearings and their accessories. The new plant will have a power equipment of a 300-horsepower cross-compound Corliss engine, direct connected to alternating-current Westinghouse dynamos, and each department in the factory, fourteen in all, will have its separate motor drive equipment. Of special interest in a plant for making ball bearings is the application of the principle of these bearings to the machinery for producing them. This is exemplified more strikingly in the machines for the final grinding of bearing members, which takes place after the members have been hardened and in their working position. The cone-grinding machine for this work operates at the phenomenal speed of 22,000 revolutions per minute and keeps it up for ten hours per day, a result which could not be accomplished without having every bearing in the grinding machine itself and its countershaft, mounted on steel balls, and even so, says F. Philip Dorn, the vice-president and secretary of the company, the statement in regard to the speed of the machine is seldom believed by those familiar with this class of work until they have satisfied their doubts by personal inspection and test. Mr. Dorn was, previous to his association with Mr. Baker, connected with the White and the Standard sewing machine companies.

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American Motor Carriage Company.

About one year ago the American Motor Carriage Company was organized and established its office and factory at 514 E. Prospect Street. The factory has a floor space of 22,000 square feet, and the manufacturing capacity is placed at 200 vehicles annually.

Several weeks ago the management of the company's affairs was turned over to the Prudential Trust Co. as receiver, with A. H. Smith acting for the Prudential Co. A number of machines were in process of construction at that time, and under Mr. Smith's direction those machines were completed and sold. More recently, and with the same management, pending a reorganization, active operations have been resumed in manufacturing and the work of building new cars is now being vigorously pushed under the personal direction of Geo. W. Dunham, a mechanical engineer of experience in motor vehicle construction.

The "American" automobile is classed as a runabout, built along substantial lines, with angle iron frame, a 6 feet wheelbase, long, semi-elliptical springs, artillery wheels, wheel steering device and capable of being fitted with dos-a-dos seat or detachable tonneau, as desired.

The engine is a 7 horsepower single horizontal cylinder motor of four cycle type, water cooled by gear pump and radiator system. The motor is located slightly back of the center of the frame, with planetary transmission and chain drive to rear axle. Two gear speeds forward and one reverse are operated by hand lever. The gasoline tank, seven gallons capacity, is located close to the cylinder, obviating long connections; the water tank, holding four gallons, is placed in the front hood. Lubrication is effected by gravity feed from one tank and is turned on and off by the same small lever that operates the electric switch, this lever being placed on the outside of the body, convenient to the operator's right hand. Jump spark ignition with patented automatic advancement, and two batteries, one for reserve. The carbureter is a float feed vaporizer well protected from dust. Both axles are ball bearing, with Brown-Lipe differential gear. An expansion brake is fitted to the hub of each rear wheel, applied by means of a foot lever. For convenience of the operator in taking and leaving his seat the wheel steering rod has knuckle joint and sleeve attachment. With the body upholstered in leather, painted French carmine and the running gears valentine red, the finished car presents a neat and attractive appearance. Weight, 1,200 pounds Price, $750; with tonneau, $850. It has been the practice of the company, after the usual shop test of the engine and its accessories, to place a temporary body on each chassis and try the car out by a tour of about 100 miles over country roads before returning the vehicle to the factory for its finishing touches.

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Automobile Garage and Repair Co.

One of the most recent additions to automobile establishments in Cleveland is the garage and repair station, with an extensive machine shop equipment, located at the corner of Erie and Boliver streets and including agencies for the Autocar and the Peerless machines. The proprietors of the place are Mr. A. L. Soper, heretofore in the general machine business at 23 Michigan Street, Cleveland, and Mr. J. M. Belin, whose experience with automobile mechanism includes service with some of the most prominent European manufacturers, notably Panhard et Levassor, Mors, Renault and Daimler, as well as with the Winton and the International companies in this country. The premises are spacious and light, and conveniently located to the general traffic.

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The Baker Motor Vehicle Co.

Electric vehicles appeal to the tastes of automobile patrons who desire an equipage exclusively for city use and as far removed from all machine shop associations and complications as possible in regard to caretaking as well as operation of the carriage. In the manufacture of runabouts and carriages of this class The Baker Motor Vehicle Company has reached a position of popular prominence and importance. More than four years ago it took possession of a special field in designing electric vehicles of light weight and graceful lines. They proved practical and in course of time also popular, and from this beginning three other more elaborate styles of carriages have been evolved, all of them easily recognizable among other vehicles. They are made at the Cleveland factory on Jesse Street. The runabout, which weighs 650 pounds and sells at $850; the imperial carriage, weighing 815 pounds, with top, at $1,200; the physician's chapelette, of 800 pounds, with closed top, at $1,200, and the Stanhope, 900 pounds, with open or Victoria top, at $1,600. Each of them is equipped with a 12-cell battery, a Baker motor of modern multi-polar type and ball bearings throughout, and a controller practically non-sparking, eliminating the possibility of welding the contact.

From a drawing.

FACTORY OF BAKER MOTOR VEHICLE CO.

The contoller lever is placed outside the seat in position convenient to the left hand, leaving the right hand for the steering lever. There are three speeds forward and back-

ward, each alike in efficiency. These speeds are for 6, 11 and 14 miles per hour. Two brakes are provided. The motor brake is applied by a back pull of the controlling lever, which at the same time shuts off the electric current. The emergency brake is controlled by a foot lever on the floor of the carriage with friction action on the rear axle. By use of a volt-ammeter the operator can at all times read the potential of cells and the current consumption, indicating what energy of the battery has been exhausted and the power remaining. The well-known Baker axles are used; the frames are of seamless steel tubing with elliptical springs. The wire spokes and hubs of the wheels are constructed of a special composition which makes them rust proof, and the detachable pneumatic tires are 2 1-2 and 3 inches. Light for night driving is produced by simply touching a button.

An especial claim for the Baker carriage is that at every bearing friction has been so reduced that it has the lightest drawbar pull per ton of any vehicle in the world, and with a view to substantiating this claim Mr. Baker has developed a quick and ready method for determining the drawbar pull of any carriage, which should be of interest in all testing departments for automobiles.

The position of the Baker Motor Vehicle Company, as well as that of the American Ball Bearings Company, is so closely identified with the personality of Mr. Walter C. Baker that a few biographical data in regard to the latter will be found of interest.

Walter C. Baker was born in Hinsdale, New Hampshire, in 1868. His parents moved to Cleveland in 1871. Hence he is practically a Clevelander. His father was a mechanical expert and inventor of wide reputation, and recognizing the trend of thought and inclinations of the son to deal with mechanical and mathematical problems, he gave him a full course of study in the Case School of Applied Science of Cleveland. After graduating in 1894 Mr. Baker soon associated himself with The Cleveland Machine Screw Co., with whom he continued until this company sold their plant to a foreign corporation. He then organized the American Ball Bearing Co. and began the manufacture of anti-frictional bearings, a line of mechanical thought that had engrossed his mind for years.

The early developments he made in devices dealing with mechanical friction inspired him with the belief that he could reduce the weight of electric vehicles, while increasing their strength and durability. His initial effort was so much of a departure in lines of design, weight and general appearance that the public were not prepared for it, and in a very skeptical way and kindly spirit pronounced his production a beautiful toy. No one seemed willing to follow up his lines of mechanical thought, and there was little else to do but to force facts through the slow process of daily demonstration, which finally resulted in the formation of the Baker Motor Vehicle Company, of which Mr. Baker is vice-president.

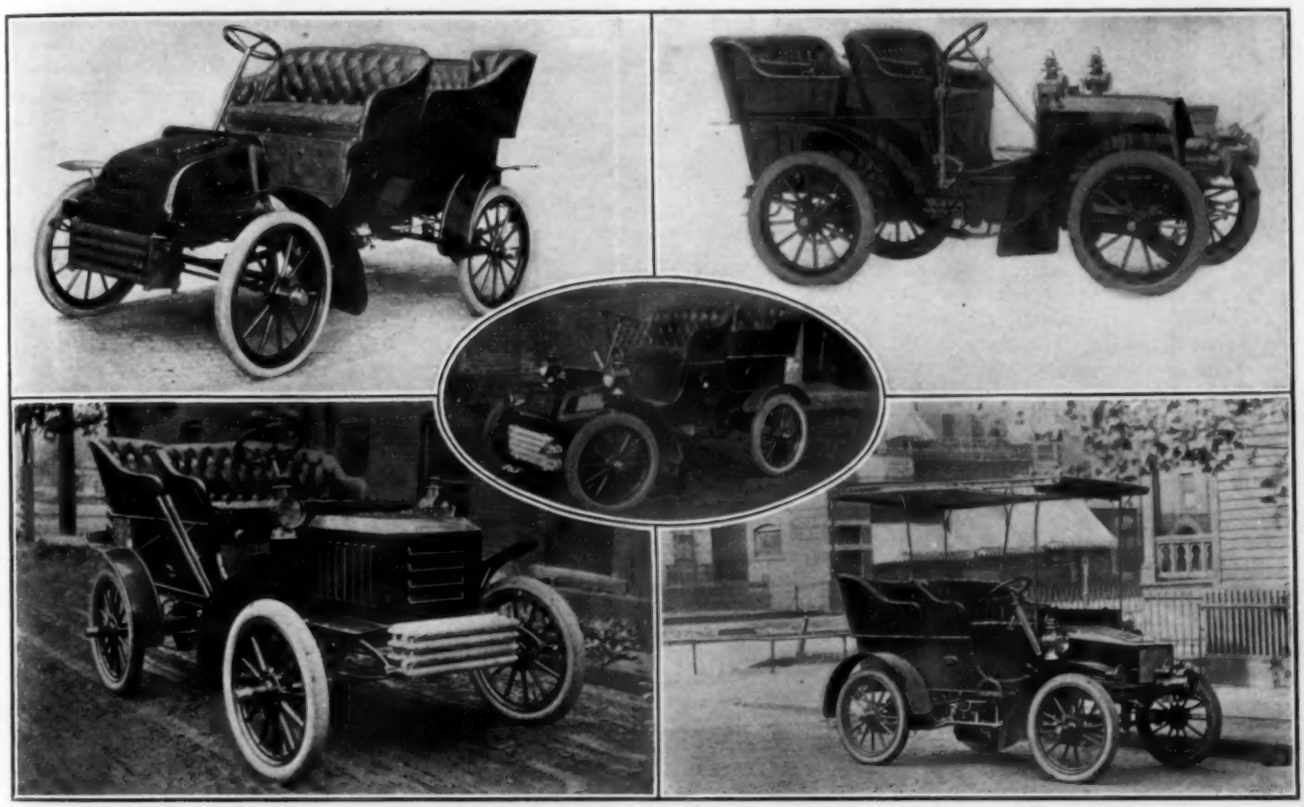
Single and Double-Cylinder Cars.

In June, 1902, The Cleveland Automobile Company was organized with a capital stock of $125,000. Its officers are: A. L. Moore, of Cleveland, president; A. L. Utz, vice-president; W. J. Urquhart, secretary and treasurer, both of Chicago, and H. J. Edwards, superintendent and mechanical engineer.

The company's offices are located at 16–18 and 20 Lake Street, with ample factory space for assembling the component parts produced at two other factories located elsewhere in the city. The manufacturing plants have a floor space of 35,000 square feet, and capacity for production is placed at 300 cars annually.

Two styles of machines are made, the Cleveland Touring Car and Clveland Roadster, both with gasoline motors.

The detachable tonneau touring car is built on the double opposed motor plan, the cylinders having 5 inch bore and 6 inch stroke, with mechanically operated perpendicular valves, developing 15-horsepower; cylinders and heads cast in one piece; circulating pump and radiator cooling system; leather-faced cone clutch, operated by foot pedal; three speeds forward and one reverse, manipulated with hand-lever; two double-acting brakes on rear



Cleveland Automobile Company's Touring Car.
Star Auto Manufacturing Co.'s Car.
Hoffman Gasoline Motor Car.
Automobile on Berg Chassis.
Konigslow's Otto-Kar—Touring Model.

axle operated by foot lever, which when applied throws out the clutch, and in addition a double acting band brake on the transmission applied with hand lever; jump spark ignition controlled by automatic governor; carbureter of the float feed type, with throttle control; steering wheel, irreversible; armored wood frame; wheelbase 6 feet 6 inches; 30-inch artillery wheels; 3 1-2- inch detachable double-tube tires; long, semi-elliptical springs; tubular front axle; rear axle solid, with roller bearings; roller chain and chain adjusting rods. The body is upholstered in dark green leather with a half-round brass moulding finish along the top lines of divided front seat and tonneau. Body color, automobile red with green striping, running gears in coach green with red stripes. Price, $1,750.

The Cleveland roadster is made to fill the requirements of a substantial runabout —a two-passenger car for every-day service as capable of taking the knocks of rough usage as the larger car. It has a single cylinder, water-cooled motor; phosphor bronze bearings; planetary type transmission; all spur gearings; two forward speeds and one reverse, operated by hand lever, and lever steering mechanism. The brakes, chain, ignition, carbureter, pump and system of control are on the same plan as those of the touring car angle iron frame; 28-inch artillery wheels shod with 2 1-2 inch double detachable tires; ball bearing rear axle and body and running gears finished in same colors as the touring car. Price, $750. The company is shipping cars as fast as it can assemble them and, says Superintendent Edwards, is sending out about nine per week at present.

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Same Chassis—Body to suit

The Berg Automobile Company was organized in July, 1902, with executive offices at 100 Broadway, N. Y., and factory at Cleveland. Mr. Hart O. Berg heads the company as president, Robert McAlister Lloyd is secretary and treasurer, and Robert Jardine mechanical engineer and superintendent. Manufacturing was begun at the Cleveland Machine Screw Company's factory during last year and the early part of 1903. It was originally intended to make two styles of chassis, one of 8 horsepower, with two-cylinder gasoline motors, and the other for a 15-horsepower car with four cylinders. Later the company has decided to build only the larger size. Some changes have recently been made in the organization, resulting in new arrangements for the manufacture and assembling of the component parts of the Berg chassis. The parts are turned out to Mr. Jardine's design by the Federal Mfg. Company, and commodious quarters, with a floor space of 20,000 square feet provided for the assembling at the company's plant on Perkin's Avenue. An output of 500 chassis during the coming year is contemplated.

With reference to the origin of the Berg company, the following statement is made:

"No doubt the day will come when our manufacturers will be wholly independent of foreign aid, but, pending its advent, the Berg Automobile Company will construct its carriages in strict conformity to accepted French design. Such slight modifications of it as appear in our vehicles impair none of the active principles of construction. Indeed, under the circumstances, that might be expected, for it is the fixed rule that whatever American skill touches it refines." Every part, however, is made in America, and all parts are made interchangeable, a special advantage claimed over the French machine.

The Berg chassis are built along the line of the Panhard. Complete cars are turned out, the styles of bodies being selected from body builders to suit tastes of purchasers. The car weighs 2,400 pounds, and the price complete is $4,000; chassis, $3,400.

In respect to mechanical simplicity, the Berg claims the least number of moving parts on any automobile yet produced in this country. The only automatic attachment is the governor, which controls the speed of the engine in conjunction with a foot pedal regulating gas and air supply at the same time. A differential shaft extends across the frame and power is transmitted by means of sprocket and chain connections from each end of this differential shaft to each end of the rear axle. The change gear, with four speeds forward and one reverse, is on the "sliding train" principle and all speeds, forward and reverse, are operated by one lever. Advance of ignition is operated by a small lever on the steering wheel post. The pedal brake acts on a drum on the differential shaft and the secondary brakes are applied by hand lever to drums on rear wheels. Either set of brakes releases the cone clutch before the brakes are applied. The clutch is also released by means of an independent clutch releasing pedal. Springs are semi-elliptical; wheels 34x4 inches; double pneumatic tires; wheelbase 7 feet 6 inches and tread 4 feet 6 inches.

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Designers and Contractors.

Besides manufacturing several specialties for gasoline cars, the firm of Brew & Hatcher, 34–38 Columbus Street, places the abilities of Willaim A. Hatcher, its technical member, at the disposal of the industry at large. Mr. Hatcher was formerly connected with the Ohio Automobile Company, now the Packard Motor Car Company, and had a large share in designing the model F. Packard car, one of which recently finished a transcontinental journey from San Francisco to New York in daily trips averaging 80 miles and without any delays lasting more than a few hours due to mishaps to the mechanism. The products of the firm's factory include carbureters, slide gear transmissions, clutches, tank strainers, pipe strainers and force grease cups.

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Ignition without Induction Coil.

The Bullock-Beresford Company, 40 Sheriff Street, is taking its place among automobile industrials with an igniter for motor cars, which operates at very low voltage and without the intervention of an induction coil. The wiring for it is simplicity itself and a casual inspection of the device bears out the assertion that it will produce a cluster of hot flashes with rapidity sufficient for the highest motor speeds.

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The Diamond Rubber Company, of Akron, O., is represented by F. E. Taylor, with a branch house at 323 Huron Street. The well-known tires of that company are kept in stock and also furnished to ten of the different automobile factories in Cleveland. This branch was established in February, 1903, and takes charge of the trade in Eastern Ohio, Northern Virginia and Western Pennsylvania.

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Many Agencies in One.

The garage and salesrooms of the Cleveland Automobile and Supply Company, 41 to 49 Vincent Street, occupies three stories with floor space of 27,000 square feet. Steam, gasoline and electric vehicles are here taken care of for city customers. Repairs are made, batteries are charged and supplies of every character are furnished to the trade. The company also represents local agencies for the Locomobile, Cadillac, Toledo, Searchmont, Waverley, Columbia and Studebaker automobiles. The garage is conveniently located and enjoys a good patronage. The business is conducted by W. M. Wright and W. A. Crawford, the latter having charge of the mechanical department. Both are men in the prime of life and enjoy the confidence of the community.

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Batteries and Charging Plants.

The Elwell-Parker Electric Company of America manufacture motors, controllers and their attachments and reducing gears for electric vehicles; also charging plants in all sizes, from the smaller kinds for private residences to the large ones suitable for automobile garages. They make batteries of 12, 20, 24, 40 and 44 cell capacity and motors from 1-horsepower up to the largest that is required. This company prides itself on the high grade of its products, combining reliability and efficiency. Its batteries are used by The Baker Motor Vehicle Co., of Cleveland, and supplied on demand to others in similar lines of industry. Mr. F. C. Phillips is general superintendent of the manufactory, situated on Hamilton Street, and is also president of the company.

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Geneva, Yale and Rambler Agency.

The Geneva Automobile Company, with its factory at Geneva, Ohio, is prominently represented in Cleveland with an office.

salesroom and garage at 254 Euclid Avenue, under management of N. A. and B. T. Quilling. This store was established about three years ago, soon after the company's first machines were placed on the market.

The Geneva steam cars for 1903 are built either with tonneau, as a touring car, in dos-a-dos style, or as a runabout. The engine is double cylinder, marine type, with link motion reverse. The engine cylinders range in size from 2 1-2 to 3 1-8 inch bore by 3 1-2 to 4 inch stroke, according to size of the vehicle. The engine, with compensating gear ,has spur gear connection to rear axle; no chain. Steam is generated by a patented combination tube and tubular, or a regular tubular boiler, as desired, tested to 600 pounds by hydraulic pressure. A superheater is employed to produce dry steam and a condenser is used for reclaiming the water and eliminating the exhaust. Water is supplied to the boiler by means of a power pump. An auxiliary hand pump is provided for filling the boiler when empty. The fire and water throttle lever is attached to the wheel steering post, which is on the right side of the car. Either a foot or hand reverse lever is put on, at the option of purchaser. Brakes on each end of rear axle are applied by foot lever. The fuel, gasoline, is forced through a vaporizing tube to the main burner with an air pump operated by steam. An auxiliary hand air pump is also connected, to be used when occasion demands. An automatic fire regulator is attached to the burner to hold the steam pressure steady. Before entering the boiler the water passes through a feed-water heater for the purpose of fuel economy. A pilot light, for starting the main burner, can be kept lighted to maintain steam pressure while the car is not running. The gasoline tank, in front of the car, and water tank, at the rear, carry supplies which are claimed sufficient for from 100 to 150 miles travel, depending on condition of roads. The axles are seamless steel tubing; the reaches are of tough wood, attached to front and rear springs, thus coupling up the vehicle and sustaining the body. Artillery wheels of 30 inches diameter are shod with 3 1-2 inch detachable tires. Geneva cars sell for from $1,000 to $1,750, according to size and style.

The Geneva Co's store at Cleveland also represents agencies for the Yale gasoline cars, manufactured at Toledo by the Kirk Manufacturing Co., and the Rambler gasoline automobiles, built by Thos. B. Jeffery & Co., at Kenosha, Wis.

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Several Cars in One.

The General Automobile and Manufacturing Company was organized in 1902 and commenced manufacture of the "General" runabout, continuing in 1903 with several improvements over previous designs. The factory and office is situated at 1312–1330 Hamilton Street.

The General is a gasoline machine propelled by a two-cylinder, balanced type engine. Gasoline is supplied by an adjustable diaphragm carbureter. The ignition, by jump spark, is automatically timed to correspond with the speed of the engine. Cylinder lubrication is supplied by a pump driven from the motor shaft. Transmission is of the sun and planet system, controlled by friction brake bands and operated with single hand lever for the forward speed changes and by treadle lever for the reverse. Power is transmitted by a Diamond roller chain from these gears to a Brown-Lipe spur gear differential on rear axle. The running gears, of reachless pattern, are hung from the frame by semi-elliptical springs of sufficient length to insure easy riding. The rear spring is fitted with double shackles and radius rods to adjust tension of the chain and keep the rear axle at a proper distance from the driving sprocket. Twenty-eight inch artillery wheels are shod with 3-inch clincher tires. Either wheel or side steering deviec is provided, at the option of the purchaser.

In addition to the tonneau attachment the company has recently designed another feature for the car's usefulness by equipping the runabout with a detachable delivery wagon top, which does not in any way interfere with the car as a runabout when the top is removed.

The General weighs 1,200 pounds and lays claim to wide range of utility for city street, boulevard or country road travel and for adaptability as a runabout, a touring car or commercial vehicle, all combined in one machine.

F. B. STEARNS — ALEXANDER WINTON — WINDSOR T. WHITE — W. W. AUSTIN — F. PHILIP DORN — L. E. HOFFMAN

H. H. HODELL — ROLLIN H. WHITE — A. L. GARFORD — WALTER C. BAKER — PAUL GAETH — GEORGE H. BROWN

SOME OF THE MEN PROMINENT IN THE AUTOMOBILE INDUSTRY IN CLEVELAND

Recently the affairs of this company were placed in the hands of L. J. Hammond as receiver, and a sale of the property is said to be impending.

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Commands a Local Following.

Since 1901 Paul Gaeth, a machinist, has built gasoline motor vehicles at 54 Warden Street. Starting from a small beginning he has now completed and sold two dozen machines of progressive merit in their construction and all the time of a workmanship which secured new customers. By degrees the small shop has grown to the dimensions of a factory, where a number of high-class mechanics are employed. All of the product, except one high-powered car equipped with a two-cylinder engine, has been of single-cylinder design. Those produced this year have a cylinder 5 1-4 inch bore by 7 inch stroke, developing about 12-horsepower, and their weight reaches 1,700 pounds. Speed changes are effected—two forward speeds and the reverse—through planetary gearing operating in an oil bath in an oil-tight

casing, with one clutch locking the whole mechanism for direct power transmission when the high gear is in. The clutch bands are nine inches in diameter and leather-lined. The carbureter is of Mr. Gaeth's own design and when demonstrated, without load on the engine, showed a fine capacity for low throttling. At low motor speeds the time for ignition remains

GAETH GASOLINE MOTOR VEHICLE.

constant at the dead center, but a special device operated with the foot advances the spark and increases the power when the driver deems this advisable, as at motor speeds corresponding to 25 miles per hour vehicle speed on the direct high gear. When the pedal is released, the ignition returns automatically to dead center. This arrangement permits the slow hauling of a load, or climbing of a grade, with a minimum of operative movements and gear speed changes as compared with a hand-operated spark-shifting lever. The cooling apparatus is designed with marked reference to the avoidance of leaks, repairs and clogging of tubes.

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Builds Anything Except Bodies.

By assembling its large plants under one management the Federal Manufacturing Company has a wide field of operation with a diversity of products, among which automobile parts and supplies are important features. Its factories are established in Cleveland, Chicago, Milwaukee, Indianapolis and Elyria.

The main office is at Cleveland and here is located its large steel ball plant, the products of which form such an important part of the bearings for automobiles and other machines built on light draft principles. These balls are made in dimensions ranging from the sixty-fourth part of an inch to four inches in diameter, according to the uses for which they are intended. For automobile bearings the "high duty" balls are made of a special grade of tool steel, and accurate to the 1-10,000 part of an inch. They are turned out in sizes from 1-8 inch to two inches in diameter and possess extremely high crushing strength. This is the largest plant of its class in the world, its output being about 1,000,000 balls daily. Other atuomobile parts are made at this factory for large and small machines, including the building of entire running gears. The Berg Automobile Co., whose vehicle is described elsewhere, is making its chassis at this plant.

The Smith stamping factory, at Milwaukee, makes a specialty of gears for electric and gasoline automobiles. This includes pressed steel, angle iron and tubular frames; rear axles, solid and divided, for chain drive or bevel gears; bearing parts; brake mechanism of the band brake type; steering parts complete, of lever and wheel design; attachments, fittings and parts for electric propelled vehicles; steel rims and hubs, and complete wheels, both wood and wire.

The Diamond chain factory is located at Indianapolis, where chains in all styles and dimensions are made for automobiles, motor cycles, bicycles and general power transmission.

At the Garford factory in Elyria automobiles are supplied with leather tool bags and other sundries of that character which go to make the motor vehicle complete in point of convenience and utility.

Though a conspicuous figure in the automobile industry, the company is strictly a parts-making concern and does not enter enter into competition with the manufacturers of complete automobiles.

Of especially timely interest among the manufacturing equipment of the Federal company is its machine for making pressed steel frames for automobiles, since it is the only one of its kind in the United States and capable of turning out work of considerable variety as to shapes and dimensions. It handles a special cold-rolled steel from the Federal company's Columbia steel works and presses it cold in lengths of up to 16 feet and of a web thickness up to 3-16 inch.

Among the men identified with the Federal Company and located in Cleveland, A. L. Garford, president; W. W. Austin, works manager, and C. R. Davis, sales manager, are widely known to members of the automobile industry.

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The Extremes in Prices.

One of the new concerns in Cleveland with ambitious plans is the Cleveland Motor Company. Its leading spirit is the meteoric E. J. Pennington, who states that he is associated in this venture with the same Cleveland men who backed his efforts ten years ago. The company will manufacture gasoline motor delivery wagons at a low price and touring cars of 160-horsepower to cost from $20,000 to $30,000 apiece. The delivery wagons will be equipped with motors actuating the front wheels, somewhat on the forecarriage plan, and arrangements have been made with the Reserve Press Company, of 83 Lake Street, to turn out the motor equipment from Mr. Pennington's designs.

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Both Gasoline and Steam.

Ever since 1898 or 1899 L. E. Hoffman, of the Hoffman Bicycle Company, has given his principal attention to the construction of motor cars, but not until January, 1902, was the Hoffman Automobile & Mfg. Co. organized in its present form. Its officers are E. D. Shurmer, president; L. E. Hoffman, vice-president and general manager; T. F. Newman, secretary and A. D. McLachlan, treasurer. The office and factory are at the corner of Lake and Marquette Streets.

This company builds both gasoline and steam vehicles in a factory of 25,000 square feet floor space. With the exception of tires and wood bodies, all parts of their machines are built at this plant.

The gasoline vehicle is designated as a general utility car, with detachable tonneau, built under direct supervision of L. E.

THE FEDERAL MFG. COMPANY'S STEEL BALL FACTORY IN CLEVELAND.

Hoffman, (also president of the Hoffman Bicycle Co.) The machine is designed for either a two-passenger, a four-passenger, or a small delivery car. Weight, 1,500 pounds. Price without tonneau $975; with tonneau, $1,025.

The Hoffman is a single cylinder, 7 1-2-horsepower gasoline car, with Kingston carbureter, jump spark ignition and two sets of batteries, one for reserve in case of emergency. The cylinder and cylinder head are cast in one piece; water-cooled jacket covering cylinder and valve case, with a gear-driven circulating pump; two forward speeds and one reverse; wheel steering; foot brake and speed control; hand lever speed shift and emergency brake; spur type equalizing gear; roller chain transmission; single member axles; semi-elliptical springs; wire or wood wheels, as desired. Wheelbase 6 feet, body 8 feet over all, tread 4 feet 8 1-2 inches; upholstered in leather, paint automobile red. The gasoline capacity is 7 7-10 gallons; water capacity, 6 gallons. Actual tests over country roads has demonstrated that one gallon of gasoline will drive the machine 27 miles at an average speed of 18 miles per hour.

Special claims for durability are based on the high grade of material and workmanship and the steel forged and hardened gears, mounted in bronze boxes.

The Hoffman steam car is of piano-box style, with or without folding seat. It has a flash steam generator; Bunsen burner; with pilot light and thermostat; marine type engine; cylinder 3-inch bore and 4-inch stroke. developing 6 1-2 horsepower; feed and emergency pumps; water capacity 40 gallons; gasoline fuel capacity, 14 gallons; wheel steering; weight, 1,200 pounds; price, $1,200; with folding seat, $75 extra.

The manufacturing capacity of the Hoffman plant is placed at 200 vehicles yearly, with a demand for about ten gasoline machines to one of steam. Speaking of the different kinds of power, Mr. Hoffman, the general manager, expressed the opinion that the steam car has a place and undoubtedly a future; but up to the present time he thinks the gasoline car has reached a much higher point in mechanical perfection.

The company is making its plans for a larger output, with some changes in the build and equipment of the 1904 products.

On the steam car four patents have been allowed—one each on the steam generator, water regulator, thermostat and air pump. Claims have been filed for one patent on the gasoline car

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A Quietly Introduced Product.

Those who remember the automobile situation in Cleveland in 1889 and 1899 recall the experimental shop of Otto Konigslow, which was always hermetically closed to intruders, not so much from fear of having shop secrets divulged as from disinclination to "show fools half-done work." Since then Mr. Konigslow has gradually and cautiously evolved a construction which passes muster before his own severely critical eyes. About fifteen cars embodying this construction have been quietly made and sold while the facilities for making have been somewhat enlarged in the way of new machinery. Lately this construction has blossomed out under the distinctive name: Otto-Kar, and has been entered among the regular products of the automobile industry. It is turned out in two styles, a runabout and a touring car with detachable tonneau.

OTTO KONIGSLOW'S FACTORY ON MICHIGAN STREET—WITH OTTO CARS IN FRONT.

The runabout has a single cylinder engine developing 6 horsepower, brake test, water cooled by the pump and radiating system. The engine crank is so constructed that it can be taken out by removing four bolts which retain the bearings without disengaging the engine, an important feature which can be appreciated by persons who have operated automobiles. Transmission is of the well known planetary type with spur gears and friction bands of cast brass, which are claimed far superior to the steel bands lined with leather which are generally used. The bearings of the transmission gear are mounted in rigid connection with the engine castings, thus securing the least possible friction and keeping the change-speed gearing and engine always in perfect alignment. The vehicle is propelled by chain drive to rear axle. A float feed carbureter is employed, and the mixture is throttled by means of a button placed conveniently in the foot board. Ignition is by jump spark, with two sets of cell batteries. Sparking is controlled by a small lever on the wheel steering post. The levers for changes of speed and emergency brake are convenient to the operator's right hand and the transmission brake is applied by means of a foot lever. Engine bearings are of a special grade of phosphor bronze and the connecting rod and crank of the best quality of forged steel. The entire mechanism is supported on a steel frame, securely riveted and braced, which permits the body to be removed without any delay. The frame is hung on semi-elliptical springs; wheelbase, 6 feet 6 inches; wheels 30 by 3 1-2 inches. Gasoline and water tanks have a capacity for 150 miles continuous travel.

GENEVA STEAM CAR WITH TONNEAU.

The touring car has a double-opposed cylinder engine developing 14 horsepower. Transmission is of the sliding gear type with three speeds forward and one reverse, all of which are operated with one lever. Power is transmitted by means of a large friction clutch acting on the flywheel and operated by foot pedal. The construction is such that it is impossible to shift the gears without first disengaging the clutch, thus preventing any possibility of stripping the gears. All bearings of the engine and

its accessories have an automatic system of lubrication which requires but little attention.

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Goodrich Company Branch.

The Cleveland branch house of the B. F. Goodrich Company is established at 414 Huron Street, and is under the management of Mr. Albert Courts.

The double detachable Goodrich tires have been adopted by many of the leading automobile builders and are known wherever the automobile has secured a list of patrons. At the Cleveland branch a sufficient number of tires are kept in stock for special orders, and larger supplies are readily forwarded from the company's factory at Akron, O.

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Hartford, Dunlop and G & J Tires.

The Cleveland branch house and factory of the Hartford Rubber Works Co., of Hartford, Conn, is situated at 77 Bank Street, under management of J. B. Cavanaugh. As now well known, their line includes also Dunlop detachable tires, which have so long been familiar to the users of all classes of vehicles. The Cleveland branch holds a prominent place in the trade with automobile manufacturers, and is also a distributing point for the G & J Tire Co., of Indianapolis.

HUSSEY'S DROP FORGING PLANT.—Axtel and Osage Streets.

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Pat. Hussey's Diversified Plant.

In the organism of an automobile there are a number of parts which in many cases can be best and most economically made by specialists. The Hussey Drop Forging and Mfg. Co. has a factory especially equipped for making parts and accessories of this description. Among them are steering wheels of the solid, tilting or sliding kinds, radiators, tanks, circulating pumps, oiling devices, drop forgings of any pattern, steering knuckles, crank shafts, connecting rods, parts for running gears and machine forgings. The company last year furnished fifty-two different automobile manufacturers with parts for as many different styles of vehicles. The Hussey sliding steering wheel is one of the newest features, and is being adopted by some of the builders for 1904 machines. This wheel slides forward on top of the steering post to admit the operator to his seat, and is then quickly slid back into position and secured. The Hussey Company built its new factory in June, 1903, and it is equipped with the latest tools and machinery for their trade. The owner, "Pat" Hussey, as he is invariably called, is becoming as widely known among automobile makers as he was formerly in the bicycle industry when connected with the Lozier bicycle manufacturing establishments.

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Wood Bodies Only.

The Hanson Car Company's plant is devoted exclusively to building wooden bodies for motor vehicle manufacturers. Every design is made to order and to fit any style of motor vehicle. The runabout, the touring car with detachable tonneau, the dos-a-dos carriage or commercial vehicle, is fitted with its respective body as called for by makers of the chassis. The Hanson company is incorporated, and its factory, at 864 Hamilton Street, has a floor space of 15,000 square feet, and with its present machinery equipment has a capacity for turning out 2,000 bodies annually. Several of the leading automobile manufacturers of Cleveland are supplied with bodies by this company. The business office is in the Williamson Building in charge of the company's secretary, G. A. Gaston.

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Possibly a Factor in the Future.

The Krastin Automobile Manufacturing Company has its factory and office at 1251 Clark Avenue.

This company dates its organization from November 20, 1901, but at present efforts are being made to establish it on a safe financial basis, so as to permit the active prosecution of manufacture on a commercial scale. About one year ago manufacturing was commenced in an experimental way, and the first complete machine has been made and sold. The officers of the company are Chas. Beardsley, president; Dr. J. Stotter, vice-president; C. Potter, secretary, and C. H. Lang, treasurer.

The factory so far used is a two-story structure with floor space of about 4,000 square feet, from which about four machines a week can be turned out. Plans for the future include a new two-story building 120 by 250 feet, providing a floor space of 60,000 square feet.

The designer and mechanical engineer in charge is August Krastin, who for the past seven years has been devoting his time to perfecting a machine teeming with new features. As a result of his ingenuity, nine separate patents have been granted and applications for two more have been filed. Of the nine patents obtained two are on the mixer, two on axles, and one each on the spark plug, the muffler, the steering device, the speed mechanism and a piston locking nut. Patents applied for are one each on the condenser and construction of the frame corners.

With the exception of the semi-elliptical springs and the Diamond double detachable tires, the entire car is built at the company's factory.

In general appearance it represents the usual style of tonneau touring car, with seating capacity for five persons. It is propelled by a horizontal two-cylinder gasoline engine of the latest design and 15-horsepower actual brake test, and the entire weight, when fully equipped for a tour, is 1,900 pounds. Price, $2,500.

Special features are the patented mixer, steering device, noiseless muffler and hub lock to rear axle.

For the mixer it is claimed that it is always reliable and that all smoke and odor is eliminated; with additional advantage of economy in fuel. The steering apparatus is of the usual wheel pattern in appearance, with ball bearing knuckle joint in the rod to admit facility of operator in taking his seat. Steering is accomplished by moving the wheel rod to the right or left, as desired. By a turn of the wheel to the right the clutch is thrown out; by a second movement of the wheel to the right the engine is put on at low speed, and by still another turn of the wheel to the right the high speed gear is switched in. By turning the wheel to the left the gear mechanism is reversed. Thus, after the engine is in motion, it may be controlled entirely by use of the steering device and foot brake, although a foot lever is also provided for controlling the speed when its use is more desirable. The muffler is of screw design, is encased and lies horizontally across the frame. The tapering lock device for securing the hubs to the axles obviates all possibility of the hubs becoming loosened by continuous forward and backward movements, strengthens the axle and also admits of adjusting the ball bearing parts.

The fuel capacity is 12 gallons, or about sufficient for a 200-mile trip over ordinary country roads. By actual test of 100 miles on bad muddy roads and hill-climb-

ing, with five persons, the gasoline consumed was 6 1-4 gallons. Water capacity for cooling purposes, 6 1-2 gallons, which is all placed in the radiator, no water tank being used. The radiator has a surface of 22,000 square inches, and a circulating pump is employed.

Chainless gearing is one of the Krastin's features. The gears are encased in oil bath with patent ball bearings; the sparker is adjustable from 150 to 2,000 revolutions; sparker and mixture controlled from the seat; emergency hand lever brake; speed control from 5 to 35 miles, by actual test; all pipe joints and connections have steel unions of special design; front axle made by electric welding system, and the car is mounted on artillery wheels of 30 by 4 inch dimensions, with a wheelbase of 6 feet.

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Renting, Agency and Garage.

Offices, salesrooms, charging station and repair shops of the Ohio Motor Car Co. are established at 317–319 Huron Street, under management of Mrs. Mary A. Post. This company represents agencies for the National Electric Vehicles, of Indianapolis, in six different designs; the Northern gasoline runabout, of Detroit, with or without dos-a-dos seat or top; the Ford automobiles, of Detroit, with detachable tonneau; the Santos-Dumont gasoline touring car, of Columbus, O., and the Packard motor car (gasoline), of Warren, O. The company also rents vehicles to the public, keep on hand a line of automobile sundries and supplies, charge batteries for electric vehicles and make necessary repairs. Owing to steadily increasing trade, plans have been made to extend facilities with an additional building, 80 by 120 feet.

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Franklin Cars and Oldsmobiles.

The Oldsmobile, manufactured by the Olds Motor Works, at Detroit and Lansing, Mich., has enjoyed a remarkable trade through its Cleveland agency, represented by R. R. Owen, state agent for Ohio and West Virginia.

The Cleveland Oldsmobile garage and salesrooms are located at 411 Euclid Avenue, where supplies are furnished and repairs made as required.

During the past two years Mr. Owen states that the Cleveland agency has sold 700 Oldsmobiles—200 last year and 500 the present year—and of that number 350 have been purchased by residents of Cleveland.

Mr. Owen has been closely identified with the automobile industry for several years. He was connected with F. B. Stearns in building and experimenting with several machines and later was superintendent of the Stearns factory. Using a Stearns machine he made the second trip with an automobile from Cleveland to New York.

He has recently taken over the Cleveland agency for the Franklin four-cylinder, air-cooled gasoline motor car made in Syracuse, N. Y., in addition to the Olds line.

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Young Ideas Shooting Forth

A new company working along lines of development of the so-called "ideal motor vehicle" is The Russell Motor Vehicle Company, with E. L. Russell, a young mechanical student of bright promise at its head. F. J. Langer is vice-president; G. F. Thompson, secretary, and C. E. Thompson, treasurer.

One of the first cars with which the company has been experimenting for a number of months, and which has recently been finished, is a light stanhope. This car, as well as other models to be built and put on the market, embodies a number of new features, designed to lessen the cares of automobilists and add to their comfort.

More as an example of the vigorous battling with automobile problems which goes on in Cleveland than by virtue of any assured importance in the industrial and commercial world—which it is yet too early to predict for this company's product

INTERIORS OF CLEVELAND AUTOMOBILE FACTORIES.

Mounting the Flywheel in a Winton Car. Assembling Room in Hoffman Factory. Testing the Engine of a White Touring Car. Corner in Peerless Assembling Room.

—there is herewith given a descriptive outline of the construction of the Russell car. It is equipped with a 6-horsepower self-starting multiple cylinder horizontal gas engine, dust proof and self-lubricating, in the crank case of which is inclosed the changing gears which run in oil, and which gives two forward speeds and one reverse. It is also provided with a double rotary pump, mounted on the engine, which pumps both oil and water. The pump is geared direct to the engine. as is also a small generator which automatically furnishes current for sparking the engine as well as sufficient current for lighting three 8-candlepower incandescent lamps—two front lamps and one extension lamp with card attached, which is fastened under the seat. In addition to the generator, the vehicle has a small storage battery which is kept charged by the generator and used for lighting the vehicle while standing idle at night and for emergency purposes. All of the above described apparatus, including water and fuel tanks, is inclosed in the body; and this is accomplished without making the latter of extreme dimensions. The frame of the body is made of 1 1-2 inch angle iron, filled with hickory strips, and the box is constructed of steel. easily removable, giving free access to all parts pertaining to the motive power. A long wheelbase is obtained through use of C springs in front, which also gives the vehicle greater resiliency. It is equipped with chainless transmission, dust proof and self-lubricating, and in the case surrounding the same is an emergency brake which operates in both directions. The entire machine is controlled by two levers, the steering lever and a lever situated on the left side of the seat. The directions of the movement of these levers indicate the direction the vehicle is intended to take. By a slight movement forward of the lever on the left side, the engine is started; a further movement in the same direction throws the engine in gear with the vehicle on the slow speed, which gives two miles per hour; a continuation of this movement in the same direction throws the engine in gear with the vehicle on the high speed, which gives twenty-five miles per hour Any intermediate speed between the two can be had by regulation of the engine through the governor, which is accomplished by raising and lowering the steering lever four inches. The mechanism is reversed on the slow speed, by moving the side lever to its extreme back position. The engines are built with two and four cylinders, the four-cylinder engines being made with two twin cylinders in tandem.

THE RUSSELL 6 H.-P. GASOLINE MOTOR CAR.

Both of these engines are operated by one rotary valve in which is located an electrical hot tube ignition, one of which automatically operates two cylinders, without the use of timing devices or induction coils. The rotary pump used on these machines stands in a class by itself, as the pump performs two functions—that of pumping both oil and water, being made double and driven by a single means of transmission. Stuffing boxes or glands are dispensed with in this pump. The muffler is also designed on a radically new principle.

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The Costliest American Car.

The Peerless Motor Car Co., originally known as the Peerless Manufacturing Co., was, previous to 1900, engaged in the manufacture of bicycles and in designing and making automobile parts. Anticipating the growth of the automobile trade a license was secured permitting the manufacture of machines under French patents and for about two years the Peerless company built the De Dion motorette, a 6 1-2-horsepower runabout, which they turned out in different styles. During this time the coming Peerless touring car was being planned under the mechanical direction of L. P. Mooers, who still occupies the position of mechanical engineer and designer.

In 1902, the Peerless Motor Car Co. was reorganzed and its officers are now L. K. McClymonds, president; M. S. Blanchard, vice president, and L. H. Kittredge, treasurer and general manager.

The offices and factory front on Lisbon Street, near Woodland Avenue, the factory covering a floor space of about 160,000 square feet well equipped with machinery for making and finishing all parts of the Peerless vehicles except the artillery wheels and rubber tires.

The capacity of this factory is placed at 400 cars each year.

By starting at the foundry where the aluminum castings are made and following along through the different stages of construction, finishing and assembling, to the final testing room of the completed cars, an interesting lesson can be obtained in automobile building.

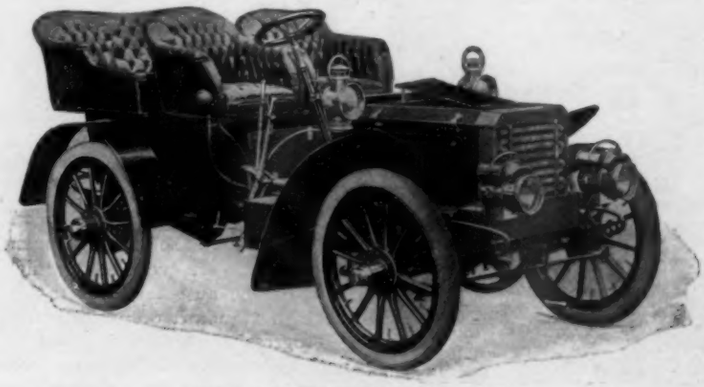
Only one style of car is built by the Peerless company—the detachable tonneau touring car. Sixteeen and twenty horsepower vehicles have heretofore filled the demand, but now larger ones are being called for and 35 and 60 horsepower cars are under construction, in addition to many of the original size.

The company has an eastern branch office at Boston and thirty-two agencies in the principal cities of the United States.

The smaller cars are built with a two-cylinder gasoline motor and the large ones with four cylinders. The motors are of the vertical design and placed well forward under the hood. In the new model the two cylinders are combined into one twin cylinder, doing away with crank disks in crank chamber by using a one-piece crank having a single throw, and in the four-cylinder car using two cranks of like mechanism. The motors are regulated by means of an automatic throttle governor on the intake; jump spark ingition with patented mechanical vibrator; cooling process by means of a gear-driven centrifugal pump, large radiating surface, and the addition of a fan kept in motion by the engine while the car is at a standstill; spray type float feed carbureter, and a stationary starting crank, operated by a dog clutch instead of a chain. The drive is by means of a universal shaft and bevel gears and power is transmitted to the speed gears by a cone clutch, engaged by a spring and disengaged by foot pedal or brake lever. The bevel pinion is mounted between two sets of ball bearings whieh take up the end thrust in the bevel pinion. Three forward speeds and one reverse are obtained by operating the shifting lever. On the high speed the motor is connected direct to the axle with no gears in use, thereby prolonging the life of the gears The speed control lever has a locking device which prevents shifting of gears while the clutch is engaged, and both foot brake and hand emergency brake disengage the clutch and hold it until released. The wheel steering column has a knuckle joint to admit throwing the wheel away from the operator when taking his seat. Tires are of the American clincher pattern, 34 by 3 1-2 inches; aluminum mud guards; two oil side lights and two acetylene headlights; wood or aluminum bodies, as desired with divided front seat

The bodies are painted in either red, ultramarine blue or Peerless green and running gears in contrasting colors. With each car is furnished the guarantee adopted by the National Association of Automobile Manufacturers.

Among the impressions a visitor to the Peerless factory receives is one of wonder-



THE PEERLESS TOURING CAR.

ment that so much can be done in so concentrated a space.

In the foundry, adjoining the main factory building, are facilities for turning out castings of bronze and aluminum, the latter material being used where strength is subordinate to lightness of weight.

The blacksmith shop presents the usual array of brawny fellows, shaping, forging, and bolting steel for the frames of the touring cars; and in the machine shop the lathes, drills, punches, milling and grinding machines stand so close together that a newcomer has difficulty in deciding where one machine begins and the next one ends.

The "tin shop," where tin is very little in evidence, is piled high with sheets of steel, copper, zinc, and brass. Here is where gasoline and water tanks are made.

That section of the shop known as the "floor," where the cars are assembled, is an ever-interesting spectacle. This work is done in sets, and "harmony" is the word which expresses the method of procedure. Each man individually is accountable for his work, and the entire set jointly is held responsible for the accurate performance of the work assigned them.

The painting and upholstering departments both require the assistance of a large force of men. The painting of a Peerless touring car alone requires from twenty to thirty distinct operations.

In an out-of-the-way section of the main building is a department for testing motors. Finally, when the chassis is entirely assembled, the testing wheels and testing body are put on and the touring car is then put through a series of grade-climbing and other tests adapted to give assurance that each individual part is working perfectly, before the body is put on and the car put into shape to be shipped.

The most costly touring cars built in America are built in this factory. The lowest priced Peerless motor cars bring $2,800, and the highest priced ones (60-horsepower) $11,000.

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A NEW STAR ON THE FIRMAMENT.

Among the new companies to which Cleveland looks with confident anticipation of important accomplishments, in view of what has already been done and the substantial organization of its commercial foundation, the Star Automobile Mfg. Co., with office and factory at 184 Kinsman Street, is prominently in the foreground, though it was organized only in October, 1902.

Its cars are readily distinguishable in the streets by their individual style and a bright gilt star on the seat panel. With the tonneau attached the style, in general, is that of a medium-sized touring car built a trifle higher than other cars of its weight and size.

The factory is a two-story building with floor space of about 5,000 square feet

THE STAR COMPANY'S FACTORY ON KINSMAN STREET.

where the frames, the motors and their accessories are made and assembled.

The Star is built for a general purpose machine, of detachable tonneau type, weighs 1,400 pounds when equipped for the road, and has so far been sold for $1,250.

Manufacturing was commenced in April of the present year and ten machines had been completed and sold July 25.

Gilbert R. Albaugh, formerly employed in the Rambler, the Olds and the Peerless automobile factories, is the designer and mechanical engineer.

The car is driven by a four-cycle single-cylinder gasoline motor located horizontally in the center of the frame, the cylinder head and accessories being directly under the footboard in plain view and within easy reach when seat panels and footboard are raised. The carbureter is of original design, as simple as a mixing valve and allows a wide range of throttling. Power is transmitted through planetary gears assembled directly on the engine shaft, and the roller chain to rear axle is of heavy design. The steering wheel works through a worm and worm-wheel sector; cooling system by means of a rotary centrifugal pump coupled direct to the engine shaft, with flanged cooler of ample radiating surface located underneath the bonnet. The ignition is by jump spark, with improved long-life commutator. The car is capable of any speed between two and thirty miles. Gasoline capacity, fifteen gallons, sufficient, under favorable conditions, for a 300-mile run. The rear axle is of the American Ball Bearing Co.'s latest pattern, with Brown-Lipe gear differential; 28-inch wood artillery wheels, shod with 3-inch detachable tires; 36-inch semi-ellipitcal springs; wheelbase 6 feet 4 inches, admitting of a long, roomy body, upholstered in leather, painted automobile red and delicately striped with black and gold.

The Star has one patent allowed on its ignition system, and patents are pending on two more of its features.

The officers of the Star Company are Henry H. Hodell, president; also president of the Cleveland Galvanizing Works; vice-president, J. A. Mathews, of the Guardian Trust Company, and formerly owner of the Crescent tin-plate mills; secretary and treasurer, W. A. Dutton, of Van Dorn & Dutton, makers of special machinery.

H. C. Robinson is the general manager, who for a number of years has been connected with the manufacture of chocolate, but finds the progressive automobile industry more to his taste.

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ELECTRIC FURNACE IN MOTOR SERVICE.

Being commercially in a close union with the Standard Tool Company, which manufactures tools for the general machine shop trade, including automobile factories, the Standard Welding Company, with shops located to the rear of the parent concern on Central Avenue, has established an important position as a member of the automobile industry as such, though its work may eventually branch into other directions as well. The president is William Bingham, a well-known manufacturer of hardware, and M. S. Gordon is the secretary and manager. The company's seamless steel wheel rims, welded by electricity and finished with a copper rust-proof coating, have found a place on many American motor cars. The union of the two ends of the steel band is made by electrical fusing affecting only the extreme points of the open circle, forming a square joint and bringing the parts so nicely together that when finished the rim appears to have been turned out of one solid piece.

Electric welding for axles and yokes, the making of controlling levers, rear axle housings, engine cranks to create doublets, triplets and quadruples, valve plungers, parallel and steering rods and every other part of the mechanism is made where electric welding or steel tubing best meets the requirements.

Mr. W. H. Pirrong, sales-manager, in common with all others seeking to improve motor vehicles, is constantly studying new plans for making machines better for the operator along lines of general utility. To that end he has given much attention to standardizing the wheel industry, especially toward bringing the tire makers to a uniform system in number and dimensions of valve and lug holes, so that any factory make of tire may be fitted to any vehicle without necessitating a change of the rim. Mr. Pirrong advocates standardization of all parts of the automobile which must in time be replaced as a natural result of wear.

CARS MADE BY STEARNS.

In Cleveland's early history of automobile building appears the name of F. B. Stearns, now at the head of the F. B. Stearns Co., whose factory and office are at 2963 Euclid Avenue.

In 1896, soon after completing his college education, Mr. Stearns fitted up a shop in his father's cellar and, relying on his own mechanical resources, commenced the construction of his first machine. For about two years he continued experiments along this line, with varying disappointments and successes, until in 1898 he became associated with Ralph R. and Raymond M. Owen, who were owners of the famous Dr. Booth carriage, built in 1894, one of the earliest automobiles made in America. From 1898 to 1900 Mr. Stearns and the two Owenses were associated together in the manufacture of various machines, and in 1901 Ralph Owen drove one of their carriages from Cleveland to New York, a feat then considered remarkable.

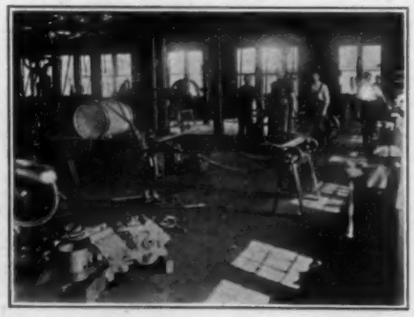
Beginning with 1900 Mr. Stearns continued alone in the business until 1902,

WING OF THE STEARNS FACTORY.

when he transferred his patents to the present company, organized with F. B. Stearns as president, general manager and treasurer, and F. M. Stearns, vice-president and secretary.

The touring car, to the building of which Mr. Stearns now devotes his principal attention, enjoys the reputation in Cleveland of being an uncommonly substantial machine, well designed to withstand wear and tear and up-to-date in design and construction as well.

With a wheelbase of 9 feet, the Stearns matic and proportioned to the varying



SECTION OF STEARNS MANUFACTURING DEPARTMENT.

touring car is exceptionally roomy and admits of a divided front seat for two persons in addition to the large, four-passenger tonneau. It is propelled by a double-opposed horizontal, cylinder 24-horsepower gasoline engine with all controls at the steering wheel; three speeds forward and one reverse; clutch band instead of cone; roller chain connection to rear axle; 40-inch springs and 34-inch artillery wheels. Gasoline capacity, 20 gallons. Price, $3,000.

The transmission and change-speed gearing is of the sliding-train type, and all gears, as well as connecting rods and crank shaft, are cut from steel drop forgings. The lubrication throughout is auto-requirements. On completing the car Archibald wheels are used, Diamond and Goodrich tires, American ball-bearing axles and Cleveland-made wood bodies.

The mechanism is covered by ten patents, most of which are on the transmission gearings.

At present the manufacturing capacity is placed at eighty machines annually, but arrangements are now being made to enlarge the facilities with a view to a largely-increased output in 1904.

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WHITE SEWING MACHINE COMPANY.

It was by the application of steam that the first motor vehicles were brought to world notice and that mechanical genius was inspired to the accomplishment of all subsequent achievements, which have brought the automobile of to-day up to its high standard of perfection.

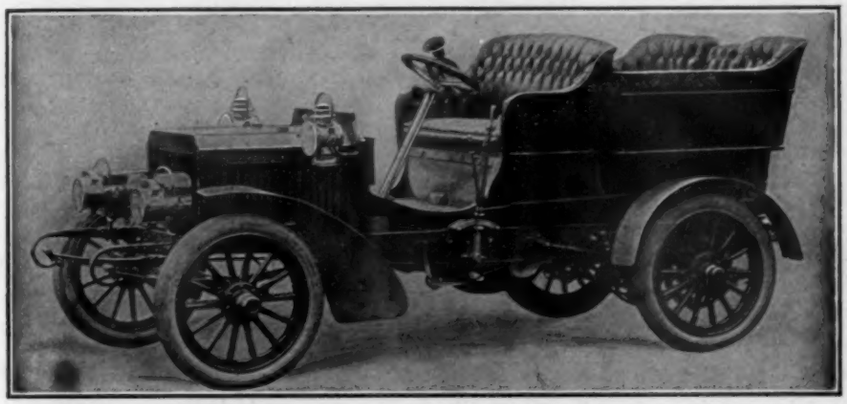
Progress along these lines has been nothing short of marvelous compared with other branches of human effort and one of the most valued contributions in the series of achievements marking the steady advancement has come from the designer of the White "Steamer," Rollins H. White, a young man just turned thirty, a graduate of Sobley College of Cornell University and acknowledging indebtedness to this institution and to Prof. W. H. Thurston, especially for the trend of ideas which eventually was materialized in White steam-vehicle construction.

The first vehicles of this type were made by the White Sewing Machine Company in the year 1900—after previous experimenting, of course—and astonished the automobile world by the demonstrations of reliability in operation from which they emerged with flying colors. Their construction, with the improvements added since their first introduction involves a story which cannot be told in a few words and which, moreover, is well known, but it may be said briefly that the White type of steam vehicle has not only contributed to hold secure that field of automobilism where steam is the most suitable power against the growing ascendancy of the convenient and economical gasoline motor, but has "carried the war into Africa," and is contesting the prestige of gasoline vehicles on their own ground, holding a stronger position here than the Serpollet steam car, with its greater complication holds in Europe. And Cleveland is natually proud of this achievement and of the large industrial plant which has grown out of it. The White Sewing Machine Company remains the title of the concern which turns out White "steamers," but its automobile department threatens to overshadow its other business.

The factory buildings, used exclusively for automobile building, cover a floor space of fully 150,000 square feet and the force of skilled workmen is sufficient to turn out twenty finished vehicles each

week, meaning an annual output of more than 1,000 cars.

A tour of the factories is convincing proof of the systematic method and extreme care with which each individual part is made, examined and tested before a finished car is released from the builders' hands. The burners, condensers and thermostats; compound engines, with their pumps, lubricating systems and other accessories, gearings, axles and ball-bearings; steam generators, gasoline and water-tanks; brazing and testing departments are each equipped with machinery specially designed for this work.



THE STEARNS GASOLINE MOTOR TOURING CAR.

In the assembling room ten machines are erected at one time.

The main factory is located on Canal Street, the wood-work of the frames and the aluminum bodies are made at a plant on Center Street, and the finishing of the bodies and final testing is done at the company's garage building, where the completed cars are turned over to local salesmen or made ready for shipment.

The most important departure from its original design of its vehicle was inaugurated by the White Company when it introduced the White steam tonneau this year, in which the lines of the gasoline touring car are adopted and all parts of the power system are supported on the running gear frame and not in the body of the vehicle. In this style of car the condenser, which was fitted to the older stanhope single-seated style only when specially requested by purchasers, is a regular feature of the equipment and in conjunction with the superheating system contributes to hold the fuel economy to close comparison with gasoline motor vehicles. Another special feature is the arrangement for changing the compound engine to a double cylinder simplex engine when an excess of power is required. This car sells for $2,000 and it is stated that more than 500 of them have been turned out. On several occasions their speed on road and track has been demonstrated to be as high as that of most racing machines, while their capacity for distance travel without renewing water or gasoline supplies reaches about 100 miles. The water tank holds 15 gallons, the gasoline tank 10.

The White garage is a four-story building 100 x 166 feet, fronting on Rockwell Street and centrally located. In its appointments it is one of the most complete in this country, with a capacity for taking care of 150 vehicles on the ground floor. Here they are kept clean, supplied with gasoline and lubricants and on call are delivered to their owners in different parts of the city. The second floor is a large storage room, the third, a complete repair shop, and the fourth floor is the paint shop, where all completed cars from the factory receive their finishing touches.

THE WHITE STEAM TOURING CAR WITH CANOPY.

Main offices of the White Sewing Machine Company are at 300 Rose Building. Branch houses are established at New York, Boston, San Francisco, Detroit, and London, England, with agencies in all the principal American cities.

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Material and Motor Cycles.

The light motorcycle end of the automobile business in Cleveland is supported by the L. J. Mueller Company, at 1153 Woodland Avenue who are also jobbers of materials for automobiles and motorcycles. In addition they manufacture small gasoline motors and what is known in the trade as the Brooks induction coil in their factory at Chagrin Falls. Reaching for his field in the business, Mr. Mueller, who is a young man of 24 years, with eight years experience in the cycle and motorcycle line, is at present building a two-cylinder motor with sheet copper water-jacket calked onto the cylinders by wire, and also a 3 1-2 horsepower motor tricycle to carry two passengers on a seat between the front wheels, besides an operator over the rear driving wheel. It is built for H. P. Hammon, of West Palm Beach, Florida.

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Metal Bodies for Vehicles.

The Wilson & Hayes Manufacturing Company have a factory devoted to making aluminum and steel bodies for motor vehicles, metal hoods, fenders, radiators, tanks and mufflers. Aluminum, steel, copper and brass enter into the different articles included in their catalogue of productions. This company supplies a number of automobile manufacturers at Cleveland and elsewhere, and are preparing to extend their production facilities by the erection of new buildings. The

men at the head of this company are T. H. Wilson and H. Jay Hayes, men of about 30 years of age, and the latter formerly connected with the Eatsman Metallic Body Company.

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WINTON'S PLANT AND PRODUCTION.

When the history of the American Automobile is written, the name of Alexander Winton will be inscribed on its pages as one of the earliest and most progressive pioneer builders. And with him have been associated from the beginning George H. Brown, secretary of the Winton Company, and Thomas Henderson, vice-president. Mr. Winton commenced his experiments several years before the majority of automobile patrons of to-day had given any serious thought to motor vehicle construction. He was the first person to make a continuous tour from Cleveland to New York City in an automobile—one of his own manufacture—and one of the cars of his company this year was first to successfully cross the continent, carrying its driver from the Pacific to the Atlantic. He established many of the fast pace, hill-climbing and endurance records at track exhibitions and in racing contests, and devoted years of his time and a large amount of money in experiments, which accomplished much in leading the public to a better understanding of the automobile and its best qualities. To Mr. Winton's skill and energy proper credit is due for designing and producing a strictly American gasoline machine that has been so generously accepted and has inspired other builders to engage in the industry.

The Winton Motor Carriage Company has one of the largest plants in the world devoted exclusively to automobile manufacture. The factory, which has this year been enlarged by the erection of three more buildings, is situated on the Berea road and the L. S. & M. S. Ry., near the Western limit of the city of Cleveland.

Nine acres of ground is covered by the various structures. The machine shop proper is 100 by 300 feet; the assembling-room, 250 by 108 feet; the repair shop, 114 by 260 feet; the paint shop, 400 by 100 feet; the carpenter shop, 185 by 200 feet; the trimming department, 300 by 65 feet; the foundry, with blacksmith shop and copper department also, 300 by 65 feet, and the power-house, with experimental shop and gas-house, 150 by 40 feet.

This year's product in the improved 20-horsepower touring car with a double opposed cylinder motor, water cooling by pumps circulation and radiator system. The cranks, crank-shafts and connecting rods are drop-forged and of open-hearth steel, with bushing and bearings of phosphor bronze. The bottom and top of the crank bit are of cast aluminum, and that part of the mechanism securely housed from dust, as are also the transmission gears. Steel gears operate against bronze. The differential gear is of the spur type, contained within an oil-tight drum, and the driving chain is of unusual strength. The 1903 car is equipped with new ignition process, simple and efficient and provided with two sets of batteries. Control of speed is quick and effective by means of an air governor operated by a spring button beneath the right foot, or the air line valve at the side of the seat at the driver's right hand. There are no sliding gears to be manipulated. The motor speeds up and the car forges ahead when the foot button pressure is increased. Speed is diminished when the pressure is released. There are but two controlling levers, one operating the hill-climbing and reverse gears and the other the direct driving gear and emergency brake. With the direct driving gear in action any variation of speed is obtained by pressure on the foot button. The opposite action of this lever applies the emergency brake, which, with the same action, disconnects the power. There is also a brake acting on the drum of each rear wheel, operated by means of foot pressure and can be set to hold the car from going down hill either forward or backward. Lubrication of the motor bearings is effected by gravity, with feed pipes running from a float chamber oil reservoir and connecting with the several bearings, the reservoir being located under the hood and higher than the mechanism. Transmission gears run in oil bath and differential gears are enclosed and packed in solid lubricants. The wheel-steering device is a development of the worm and segment principle. The frame is of double angle and sheet steel. riveted and braced with iron box corner connections to insure perfect rigidity to the joints. The front axle is forged from one solid piece of steel, with double ball-bearings for front wheels, and the rear axle is of tubular tri-strut type. the live axle extending through from each rear wheel to differential gear at the center where it is secured by means of key and pin. The live axle revolves in parallel, anti-friction roller-bearings of Winton design. Springs are semi-elliptic, both front and rear, are long and specially constructed for strength. Wheels are of the artillery style, with wooden felloes and spokes and metal hubs, with double clincher tires. Gasoline and water tanks are placed beneath the front hood. The gasoline capacity, which is sufficient for 175 miles travel over ordinary roads. There is an artistic touch of tone and quality in the body lines and with the extra door seat in the tonneau, five persons are comfortably seated, the interior being handsomely upholstered in leather. The standard coloring combines a light maroon body and glazed carmine running gears, with polished brass trimmings, all highly finished.

The Winton garage is at the corner of Euclid Avenue and Huron Street and combines local sales depot with storage-room and repair shop for owners of Winton cars under the management of Chas. B. Shanks. Other branch houses and garages are located in New York, Boston, Philadelphia and Chicago.

THE WINTON 20-H. P. DOUBLE CYLINDER TOURING CAR.

Cleveland Concerns Affiliated with Automobile Work.

It goes without saying that the automobile industry, like every other industry, draws its supplies from many sources and, on the other hand, also inspires new work in many places, thereby affording a livelihood or an addition to the earnings of many thousands of persons. To include all of these in the subject of this article would

increase its scope beyond practical limits, but a mere mention of Cleveland firms with whom the trade derived from motor vehicle makers and owners has grown to more than a nominal percentage of the volume of business which they transact, will show, to some extent, what benefit a large city can reap by taking that cordial attitude toward the automobile movement which is noticed in Cleveland.

Among such firms are those referred to in the following:

Seats and Trimmings.

A concern which has been turned almost completely from the carriage and furniture trades to automobile work is the one conducted by Louis Doering at 54 Michigan Street. It is engaged in the manufacture of leather trimmings and spring seats for automobiles. While its productive capacity is at present largely preempted for the orders of a single automobile manufacturer (the White Sewing Machine Company), its patented seat spring is available for the industry at large. In this seat the individual double-helical springs are tied almost rigidly together by means of copper wire twisted taut at both the bottom and top of the springs, and the result is a seat in which the resiliency of each spring is reinforced by all the others, greatly increasing the durability of the article and obviating all sagging at some one point—the bane of spring seats in general.

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Burners for Steam Cars.

The Dangler Stove Company supplies manufacturers of steam vehicles with burners and generators. The Kelly Tubular Burner is made of one continuous steel tube, with cross tube below which is connected with each coil, giving an even distribution of gas over the entire surface of the burner. The claim is made that, owing to its construction, there can be no backfiring and with its solid sheet steel bottom, with the air taken in from the ends, it is impossible to have a down-flashing or over-lapping fire. The Kelly generator attaches to this burner for first lighting and keeping up a sub-flame always in readiness to turn on the burner. This patented generator is sold to steam vehicle makers in Cleveland and in other parts of the country.

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Rubber Goods and Tires.

The D. E. Foote Rubber Company, at 347 Huron Street, are representatives for the Goodyear and International companies in Cleveland. A supply of tires, sundries and mechanical goods are kept in stock for the automobile trade.

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Models and Patterns for Castings.

For every new design in mechanical construction, and for the constant changes in original plans for engines and their accessories, new patterns must be made for all castings. The Balkwill Pattern Works, at 970–972 Hamilton Street. makes a specialty of patterns for the automobile trade. This company is listed among the pioneers in the motor vehicle industry of Cleveland, having made patterns for some of the first automobile engines planned. Working models of machinery are furnished as required.

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Body Springs in all Shapes.

The Forest City Spring Works make a specialty of fitting different styles of automobiles with oil-tempered steel springs in elliptic, semi-elliptic or any other shape used. The best material is required for this work. and the springs are hand made to obtain the most perfect results in tempering and assembling the parts. This company has been engaged in making vehicle springs since 1870.

Bolts the Main Product.

A large number of bolts for tires, rims, and different parts of automobile construction are made by the Kirk-Latty Manufacturing Company at its large plant on West Madison Avenue. A very few complete automobiles with gasoline motors have also been turned out of this factory for use by members of the company, but the statement is made by the management that there is no intention of engaging regularly in automobile building.

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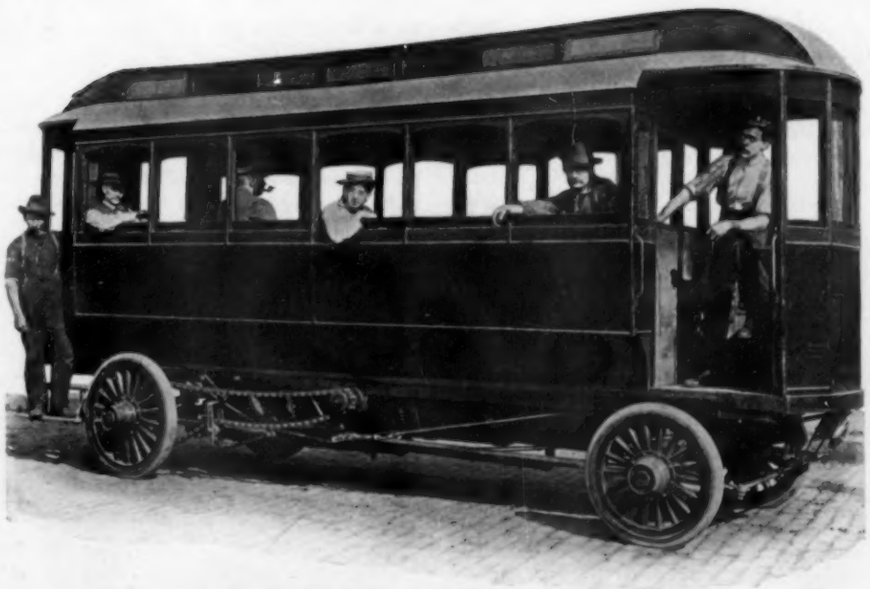
Large Producers of Cells.

The manufacture of ignition batteries and spark coils for gasoline vehicles is carried on extensively by the National Carbon Co., at its plant on West Madison



Murray 26-Passenger Gasoline Street Omnibus.

In the accompanying illustration is shown a twenty-six passenger omnibus which was recently completed in Cleveland. It is driven by a 30-horsepower single-cylinder gasoline motor. The fly-wheel, which is only 28 inches in diameter, weighs 1,000 pounds; practically all of this unusual weight is in the rim, the cross section of which is 5 by 7 inches. The gasoline tank holds fifteen gallons of fuel and the water tank is of 60-gallon capacity. A circulating pump is used, but no radiator is required because of the large volume of water carried.

The transmission system affords two forward speeds of 6 and 12 miles, and a reverse. A single lever actuates the forward speed changes, and a second lever operates the reverse. Only one brake, which is very powerful, is used. It operates on a drum mounted on the transverse countershaft, which also carries the differential.

Side chains of 2-inch pitch drive direct to sprockets on the rear wheels. The tension of the driving chains is maintained by jockey pulleys or idlers, one of which is clearly shown by the photograph.

The farme of this 'bus is of channel iron construction, trussed, and the axles are connected by tubular steel reaches. These reaches are not continuous; their inner ends are swiveled to a heavy sub-structure which is a part of the framework of the car. The axles are solid steel, 4 inches in diameter. The wheels, which are 36 inches in diameter, are of hickory and strongly built. Solid rubber tires of 4 1-2-inch tread are fitted.

The wheel base of this car is 14 feet, and the tread is 5 feet 9 inches. The overall length is 22 feet and the total height 12 feet. The total weight is about 5,000 pounds.

J. P. Murray, 171 Merwin Street, Cleveland, O., is the builder. It was the original intention to employ the vehicle to carry passengers about the city on a regular schedule, but it may be decided to put it into service for the use of tourists visiting the city.

Street. The "Autocell" is one of its leading products. This battery consists of a number of specially constituted dry cells in a sealed metal case. Each cell is surrounded by insulating material, making the complete battery water and moisture proof. So carefully have provisions been made to guard against damage from moisture that the Autocell, with its flexible wire connections, may be run under water, as is sometimes done when used for marine engines. These batteries are made in different sizes, with flexible connections and with winding posts, the smaller sizes in tubular form to more particularly meet the requirements of motor bicycles. Other batteries made are the Multiplex, the Columbia and Special Columbia, the Stand-By, the Rex Closed Circuit, the No. 2 Carbon Porous Cup Cell, and the Type D. In waterproof and jump-spark coils this company also meets the motor vehicle trade with several different designs and with a variety of sizes.

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Regenerative Electric Motors.

The Lincoln Electric Company makes automobile motors with a new recharging system. These latest type motors, and the controllers that go with them, are the subject of a patent recently issued. It is claimed that an electric carriage equipped with this latest design will travel farther with the same battery charge than one fitted with the ordinary series motor, from the fact that the motor is changed into a dynamo and charges the battery whenever the carriage is running down hill or whenever the carriage is reduced from third speed to second speed or from second to first speed. As, for instance, suppose a carriage to have three speeds, of 4, 8 and 16 miles per hour. When descending a 4 or 5 per cent. grade the speed of the vehicle will be about five miles per hour and the batteries will be charging at the rate of from 10 to 25 amperes, depending on the weight of the carriage and steepness of the grade. If desired to descend faster, move the controller to the second speed and the carriage will go at about ten miles per hour, charging the batteries twice as fast. Another advantage over the ordinary series motor is the higher average efficiency obtained where the load is light. When a carriage is going down a 1-2 per cent. grade, for example, the load is much less than when running on a level, but the current required by a series motor is but little less than that needed on the level. For the Lincoln style of motor it is claimed that it takes the current strictly in proportion to the load, thus saving in current consumption. A carriage driven by a series motor required 13 amperes down a grade of about 4 per cent. on Broad Street, Cleveland. The same carriage equipped with this new motor and controller descended the same grade and charged the batteries 20 amperes.

These new equipments for electric vehicles are being made in capacity from 1 1-2 to 8 horsepower and with two or three speeds, as desired.

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Electric Charging Plants.

For recharging electric automobile batteries the Merriam-Abbot Company makes two sizes of plants for individual carriages to be used independently of garage charging equipments. The power for these plants is derived from gas or gasoline engines made in two sizes, 3 and 6 horsepower. The batteries range in size from 10 to 44 cells.

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Willard Storage Batteries.

A special feature of the Willard Storage Battery Company is the manufacture of batteries for the automobile trade. In number of plates they range from 5 to 15,

FACTORY WILLARD STORAGE BATTERY COMPANY.

with a discharge of from 15 to 52 1-2 and 18 to 63 amperes every four hours, according to the different sizes made. The positive plates, with perforated hard rubber sheaths, and the negative plates are assembled with separators between and with cells connected are placed in hard wood trays with brass terminals. Each battery is charged before leaving the factory. The company also furnishes the trade with miscellaneous supplies for reinstating the batteries when necessary.

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To Prevent Boilers Burning.

The Reliance Gauge Column Company manufactures a low water alarm as a safeguard against accident to operators of steam vehicles on which boilers are used. This attachment weighs only four pounds and is ingeniously constructed on such plan that it gives an alarm by means of the whistle in case the water gets down to a given point in the boiler. C. L. Douglass is president and R. J. Frackelton secretary and treasurer. The company's main business is the manufacture of low water alarms for stationary boilers.

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Dry Cells for Ignition.

The Nungesser Electric Battery Company, at 27 King Street, produces about 1,500,000 dry electric cells per year, and among the different varieties the "Acme" and the "Igneo" are intended mainly for automobile work. The latter is of 20 amperes, 1 1-2 volts. The company has been in the battery business for 14 years and was incorporated in 1896. The officers are A. B. Foster, president; H. T. Roberts, treasurer, and P. P. Nungesser, superintendent.

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Automobile Houses.

Thirty-five houses for automobile barns have been erected in Cleveland since last spring by the George A. Rutherford Company, 40 Sheriff Street. Their main business is to build coal sheds for railroad companies and these are shipped to all points of the compass. The structures are of wood and many of those intended for sheltering motor vehicles are of the portable kind put together from ready-made sections. The sections are joined by bolts. They hold from one to four machines, but can be made in any size. Those put up in Cleveland have cost from $75 to $1,000. The more expensive ones are lined with Georgia pine ceiling boards.

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Other Affiliated Concerns.

Other Cleveland firms whose business brings them in contact with automobile makers and owners, in some cases in transactions of considerable magnitude, but of whose dealings the time for investigation has been too short to learn further details, are: The Standard Tool Co., Reserve Press Co., Theodore Electric Co., Allyne Brass Foundry Co., Bassett-Pressley Co., Cleveland Hardware Co., Cleveland Tanning Co., Eagle Mfg. Co., 383 Prospect St., metal polishers; Globe Machinery and Stamping Co., 970 Hamilton Street, parts, tumbling barrels, etc.; Theo. Kundtz, Viaduct and Superior Street, wood bodies; Machinery Forgings Company, Rockwell Street, corner Bond; Frank Philips Carriage Company, Euclid Ave., auto tops; Ruperch Electric Company, American Machine Co., Amstutz-Osborne Co., specialties, F. H. Bultman & Co., gears; Cleveland Automatic Machinery Co., Cleveland Faucet Co., pumps; George Cooper & Co., springs; Glidden Varnish Co., Gobeille Pattern Co, Inner Seal Mfg. Co., Euclid Avenue and Wade Park, tire compound; J. C. Reid, patterns; W. S. Tyler Wire Works, Eberhard Mfg. Co., Pan-American Polish Co., wood body polish.

It is hoped that the account of "Cleveland's Automobile Activities" contained in the foregoing pages, imperfect and probably incomplete as it necessarily is, will prove of value and of interest to the participants in the Endurance Run organized by the National Association of Automobile Manufacturers, and will contribute to make all readers of THE AUTOMOBILE realize how strong a factor, and how irrepressible, the automobile movement has come to be in our industrial world and in the life of the people of the United States.

PROPOSED ONE-HUNDRED MILE ROAD RACE IN NEW YORK STATE.

A road race of 100 miles is being planned under that clause of the New York automobile law that provides for speed-contests on the roads under local sanction. The affair is in the hands of Joseph Tracy, who claims he has promises from enough entrants, whom he represents, to assure a successful affair. The idea of the promoters is to confine the race to American cars. The exact course has not been decided upon, although Long Island has been selected as the probable venue.

Talking of the proposed race, Mr. Tracy said: "In the yacht race for the America's cup every facility was given to maintain a course, even to furnishing government boats for patrolling the course and using government authority to suspend licenses of fractious steamboat captains. And all for what? To race two boats that in themselves had no relation to pleasure yacht construction With an industry so important as that identified with automobiling, and the number of men dependent upon it, why cannot a like encouragement be given, particularly as we have a law whose framers must have had something of the kind in mind when they put in that special permit clause? Until something is done in this direction American automobile makers stand no show at the James Gordon Bennett cup, the racing for which calls out representatives from at least twice as many countries as does the yacht cup. More than this, racing for the automobile cup advances the knowledge of construction in a useful industry. American makers should be given a chance against foreign makers. Patriotism ought to step in and create a sentiment that would furnish this chance, and a road race, under proper restrictions, with neutralized sections through towns, would enable American makers to compete for the cup with some hope of winning."

The report comes from Cleveland, O., that it is proposed by certain Cleveland legislative candidates to present a bill at the next session of the Ohio Legislature prohibiting automobile racing in the State, the idea being to place automobile racing on the same level with prize-fighting.

Fall Styles in Auto Clothing.

The designing of suitable automobile garments and wraps has become an important branch of the costumer's art. During the summer light-weight tweeds and cheviots and linen auto coats have been extensively worn by the up-to-date motorist, but with the cooler days of early fall these have given place to garments of soft French kid. The automobile woman having put away her flowing light silk auto coat, which offers insufficient protection against the cool fall winds, now appears in a long garment of softest ooze leather or a heavy-weight Sicilienne.

The grotesque "toggery" for women's wear that distinguished the early efforts of designers has passed. This season's garments are modishly cut, and the hats, caps and veils offered are "natty" and more attractive, while face masks and goggles, if worn at all, are so cleverly designed that they seem to enhance the charms of the wearer. Saks and Company, of New York and Washington, are showing some particularly attractive auto coats and caps in the automobile department of its large New York store.

A practical and attractive garment for an autumn automobile tour is a smart wrap of heavy Sicilienne, which should be made long, reaching nearly to the hem of the frock. This garment is cut loose and easy, with ample pockets at each side of the fronts, which are fastened, single breasted, with large carved pearl buttons. The sleeves have a simple turn-back cuff. Sicilienne is particularly suitable for automobile wraps because it sheds dust perfectly, and is light and comfortable. Dark shades are much affected, and perfectly plain designs are preferred.

SICILIENNE TOURING GARMENT.

OOZE CALF COAT AND CAP.

A very simple cap, cut from the same Sicilienne as the coat, completes the costume. It has a cape-like arrangement at the back, which entirely covers the hair and is shaped to fasten in front to protect the throat. This combination forms an effective dust and wind shield, while the cape, which fastens to the coat with snaps, holds the cap in place in a secure and natural way. The goggles are not unsightly; in fact, they seem to add a piquancy to the face of the wearer, while they afford ample protection against wind and dust. These goggles are made in dark green patent leather, with the usual mica eye pieces. The wind shield extends well up on the forehead and down on the cheeks. Heavy white kid gloves should be worn with this costume, or they may be of light tan shade.

WATERPROOF SILK HOOD.

For long distance touring, leather, instead of cloth, is the ideal material, and soft ooze calf is especially desirable, being very pliable, warm and dressy. A leather auto coat may be worn over a knitted jersey or other warm garment, while the skirt should be rather short and of reasonably heavy material. A coat of this type should be of the box pattern, with full skirts and loose fronts, and a high spreading collar. The garment fastens in double-breasted style, with tabs and handsome metal buttons. Pockets are conveniently provided at each side of the front. It will be noted that the full sleeves are drawn in at the wrists to exclude the wind and are fastened with leather straps The cap, also of ooze leather, has a deep visor to protect the front hair. If the motoriste is careful of her complexion, she will don a face mask, regardless of appearances. The mask is sometimes made of white leather or heavy silk, the goggles having mica eyepieces. The wearer should be provided with a large and heavy silk mesh hair net to protect the coiffure.

Women's auto coats are not always severely plain, especially if intended for town wear. The accompanying interesting photograph of Miss June Van Busdirk, seated in a Richard-Brazier car,who kindly consented to pose in a particularly attractive automobile coat, offers a good example of a comparatively elaborate garment. Miss Van Buskirk is going to London soon to play the part of Ella Seaforth which she created in "The Earl of Pawtucket."

A clever designer offers a heavy waterproof silk hood or head covering, to prevent the hair from blowing in the wind, and to exclude dust and dirt. This hood is shaped to go over the hat, which should be perfectly plain, and ties under the chin, completely enveloping the head. The hood is light in weight, attractive in appearance and essentially practical.

Auto Garments for Men.

Someone has remarked that it is difficult to tell the difference between master and man, when both are dressed in conventional automobile clothing. In a sense this statement was true in the past. To-day there are distinct differences between the clothing worn by an automobile owner and his chauffeur. The chauffeur's outfit closely resembles a uniform, while the owner usually wears a longer coat reaching to the ankles. This garment is made of linen for summer wear and of leather for the fall and winter. If the enthusiast delights in driving his own car, and at times is willing to act as his own mechanic, a combination garment is desirable. The latest outfit of this kind, illustrated herewith, is manufactured by Demmerle & Co., of New York, leading makers of American automobile clothing. When the wearer is standing the garment does not look unlike an ordinary tourist's coat; but when seated the flowing skirt may be folded about the limbs, replacing a lap-robe, and when it is necessary to make a road repair, the skirt can be transformed readily into a pair of trousers, the two parts being wrapped about the legs and held by leather straps which are carried in the pockets of the garment. This practical combination suit, which is made of soft black French kid lined with Italian satin, is provided with large jacket pockets, a high and roomy collar lined with corduroy, which may be turned down at will, and wristbands that effectually keep out

ATTRACTIVE DOUBLE-BREASTED COAT FOR TOWN WEAR IN COOL WEATHER.

wind and dust. Apertures are conveniently placed to enable the wearer to reach his coat and trouser's pockets when

KNICKERBOCKERS AND LEGGINS.

desired without unbuttoning his leather costume.

Fall styles in chauffeurs' garments, or livery, do not differ materially from earlier patterns, but the tendency is to simplify the designs and to make them more characteristic for servants' wear. A new combination of knickerbockers and leggins, one of the latest chauffeurs' garments, affords complete protection for the lower part of the body. The leggins are tightened by laces and hooks, and held in place by straps which button at the bottom. The garment is made of leather, lined with durable black material.

Goggles and Caps.

It would seem that the conventional auto goggles afford little opportunity for improvement, but such is not the case. The ingenious designer has improved these useful accessories of automobile dress in a variety of ways (p 344.) Goggles for fall and winter wear are now fur lined, the fur coming well to the outer edge of the eye pockets, fitting closely to the head and protecting the eyes from the side. Glass eye-pieces are generally used in goggles of this type, but mica is not infrequently employed. Mica is light and possesses an additional advantage in that possible breakage does not endanger the eyes of the wearer. If glass is used the lenses are curved outwardly and carefully fitted. Colored glasses may be used to advantage, while "smoked" glass, which is restful to the eyes and does not obstruct the vision, is sometimes preferred.

In details of construction, the latest style of face mask is not unlike the goggles mentioned, but the leather eye-pockets are replaced by a curved leather face mask, fitted to cover the nose of the wearer and coming well down over the cheeks to protect the face against a cutting wind and rain or snow. These large, fur-lined face masks are a boon to the operator who is unfortunate enough to have a tender skin.

An entirely new type of automobile cap has been devised to protect the head and ears. A good example is illustrated herewith. It is made of some light-weight waterproof material, and fits well down over the head. It has large flaps that can be let down over the ears and fastened under the chin, or snapped in place, when not required, over the top of the cap, as shown. A cap of this style is neat in appearance and most practical—advantages which are so evident that these caps are superseding the leather hats modeled after the conventional yachting cap.

There is little that is new in fall gloves, those of gauntlet type being as popular as ever, although there is a wider variety of weights and colors than ever before.

A new automobile robe is worthy of especial mention. It is made of leather,

CLOTH CAP WITH FLAPS.

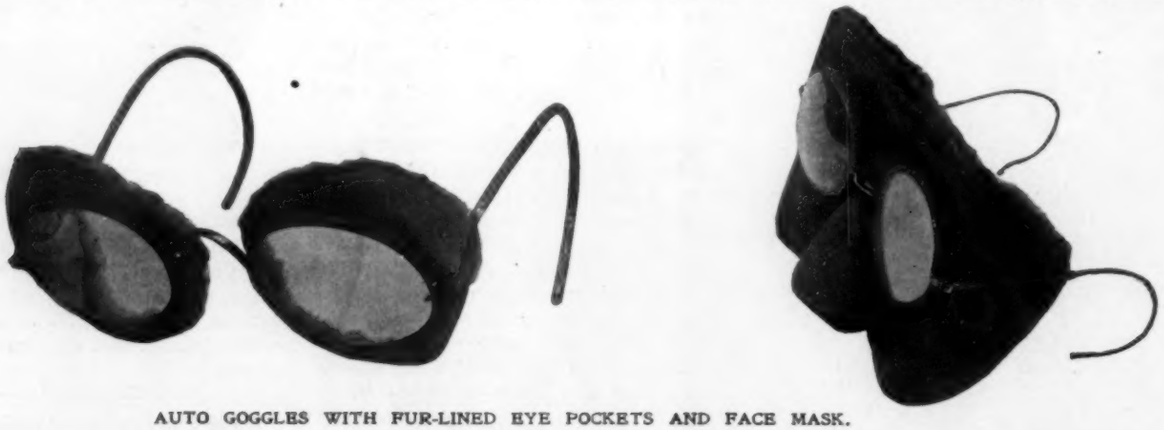
or imitation leather, and lined with heavy woolen goods. Two large pockets in the front are provided, in which guide books, maps, pipes, match-boxes and other small articles can be kept and easily reached while driving, and without removing the gloves.

Motor Cycle Brake and Endurance Tests.

The New York Motor Cycle Club proposes to close the season with a braking contest and a 100-mile endurance run. The braking contest will be held some

COMBINATION LEATHER GARMENT, WITH SKIRT THAT CAN BE TRANSFORMED INTO TROUSERS.

time in October, while the endurance run is scheduled for election day, November 3. The club has a rule to always hold a century run on this annual holiday, but this year the event will be conducted under new rules, and medals will be awarded on a basis of points. The contestants will not be permitted to pass the pace-maker nor to fall behind more than a given distance. All lapses in this regard and all stoppages for whatever purpose, aside from those provided for in the rules, will incur the loss of points. The club has started the indoor season by instituting a series of "Saturday night talks."



AUTO GOGGLES WITH FUR-LINED EYE POCKETS AND FACE MASK.

Secretary Stillson of the A.M.L. an Enthusiast.

One of the most enthusiastic and persistent users of the motor car in the metropolitan district is Robert L. Stillson, the energetic secretary of the American Motor League. Mr. Stillson's recent purchase of a Searchmont touring car marks his third investment in motor cars, the first two having been steam machines. During the last three seasons Mr. Stillson and his family have toured through the attractive section of New Jersey, Pennsylvania, New York, and several of the New England States, and during these trips he has collected a great deal of touring information which the Motor League will hereafter use to the advantage of its members. Secretary Stillson purchased his first automobile five years ago and may, therefore, be regarded as somewhat of a veteran in the sport. He has recently removed to his new home in Flatbush, where he has built a neat and finely equipped autohouse in the rear of his residence.

His Auto Played Horse.

Fred Sigmond's automobile took a notion to play horse with him last Friday and the thing refused to go. Fred thinks maybe it was a little off its feed.—*Crown Point (Ind.) Register.*

The Board of Public Safety of Indianapolis, Ind., is considering the purchase of an automobile police patrol.

Denver Parade and Race Meet.

Special Correspondence.

DENVER, Sept. 26.—The remarkable growth of the automobile in popular favor in the Far West was shown yesterday, when record-breaking crowds attended the automobile races and parade of the Colorado Automobile Club at Denver.

At Overland Park, where the races were held in the afternoon, the crowd was estimated at 6,000 people, being the largest in the history of the Park with the exception of one or two Derby Days. Not only was the grandstand crowded with interested spectators, but the infield was a solid mass of automobiles of all patterns and makes. Denver society was present, and there were many novel automobile turnouts, including high-class machines of the best American and imported makes.

Before the races the full strength of Colorado's automobile force was brought out in a street parade. The procession formed on Colfax Avenue, near the State Capitol. Two hundred automobiles were led by a band in a powerful automobile break. Governor Peabody, of Colorado, accompanied by his wife, Dr. and Mrs. S. F. Bartlett, and Miss Cora Peabody, rode in a large black steamer. The parade was viewed by thousands of people along the route, which included all the principal downtown streets.

When the automobiles returned past the capitol building they were photographed by a moving picture machine. The pictures will be exhibited in theaters in all parts of the world.

The parade was repeated in the evening. Many of the machines were decorated with electric lights and Chinese lanterns. The brilliant cavalcade made its way to the City Park, where the automobilists listened to a band concert. The parade then

SECY. R. L. STILLSON, OF THE AMERICAN MOTOR LEAGUE, STARTING FOR A RIDE.

turned back to town by way of Colfax Avenue. Some remarkable pretty effects in illumination were obtained, especially by occupants of the electric carriages.

There were eleven races on the track, and each had interesting features, while there were hair-line finishes in some, which were run in surprisingly fast time considering the fact that the track was not banked for the highest speed. Some of the close finishes brought out the fact that Colorado has some able chauffeurs who might easily make names for themselves on any track. The steamers made the best time in nearly every event. The best time of the day was 1:26, made in a small Stanley steamer driven by George Herring.

The first event was a five-mile race for gasoline machines costing $1,000 or less. Seven started, though the event was not as well contested as others that followed. A Rambler machine, operated by C. V. Dasey, led from the start, finishing in 9:58. E. W. Swansborough, in a Rambler, was second; and M. B. Fletcher, in an Oldsmobile, third.

The five-mile race for tonneau cars carrying full load, with the usual road equipment, was won by W. B. Felker in a Peerless in 2:58. M. L. Lindahl in a Winton was second. The race was interesting, the leading machines changing places several times, but Mr. Felker finally won by four lengths.

M. J. Patterson's Franklin won the five-mile race for gasoline machines costing $1,000 up to $2,000, inclusive, stripping confined to tonneau and trimmings. A. T. Wilson's Toledo was second, and Dr. F. N. Cochem's Franklin third. Time, 8:12 1-2.

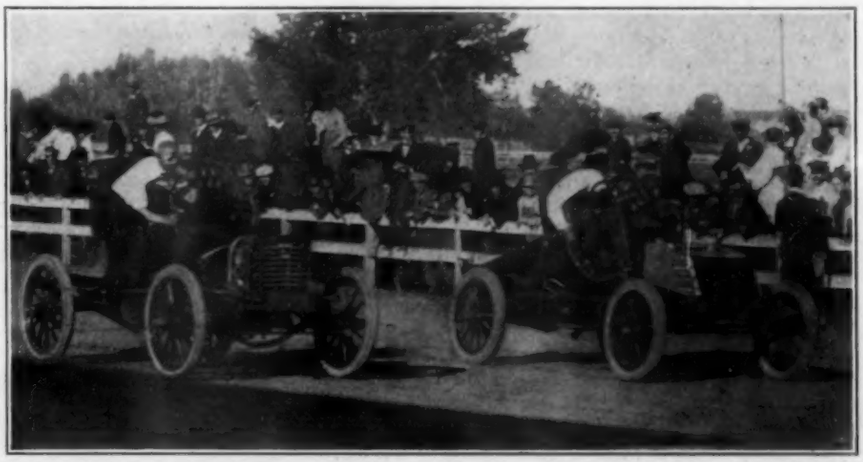


Photo by J. N. Langer, of Denver Post.

FELKER (PEERLESS) AND LINDAHL (WINTON) FINISHING 5-MILE AT DENVER.

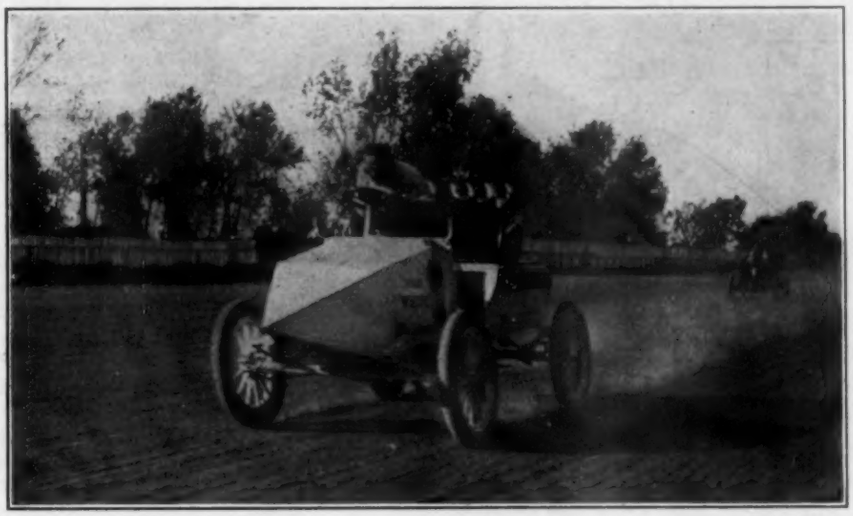


Photo by J. N. Langer, of Denver Post.

CHARLES BILZ (WHITE "ANGEL") WINNING 10-MILE RACE.

It was a close race, and Dr. Cochem would have had a good chance of winning had he not punctured a tire about the middle of the race.

The ten-mile race for gasoline and steam machines costing $2,000 to $3,000 was won by Charles Bilz in the Colorado Motor Carriage Co.'s White steamer in 15:17 1-2 W. B. Felker in the Felker Cycle Co.'s Peerless was second and M. L. Lindahl in the Colorado Automobile Co.'s Winton, third. This proved the most interesting race on the card. Mr. Bilz (White) was passed by every other machine in the race and apparently he was hopelessly out of it, but the machine began to pick up in the third mile and soon had passed the field, finally winning by nearly half a mile. The real race was between the Peerless and Winton, the former winning by a narrow margin.

The fifth and sixth events were canceled as many contestants who had entered did not come to the tape.

The five-mile race for gasoline machines costing $1,000 or less, stripped for racing, was won by E. L. Mathewson in an Oldsmobile in 9:14 1-2, with E. W. Swanborough (Rambler) second and C. V. Dasey (Rambler) third.

The ten-mile open for machines costing less than $3,000, stripped for racing, went to George Herring (Stanley) in 14:45, with W. B. Felker (Peerless) second and M. L. Lindahl (Winton) third. This event was not only the fastest of the day but was the most exciting. Owing to its previous good showing, the White was the favorite, but the machine proved no match for the light Stanley. At the seventh lap the White took the pole from the Winton and the judges disqualified the White.

Another Stanley, owned by the Automobile Repair Company, won the one-mile race for steam machines under 6-horsepower by nearly a quarter-mile in 1:29 1-2. A Mobile, operated by H. K. Wheelock, was second.

The five-mile motorcycle handicap was won by G. A. Maxwell from scratch in 7:13 3-4. He rode a Max motorcycle. G. W. Coffin (Orient), with 40 seconds handicap, was second, and Ben Derks (Derks), with a handicap of 1:05, was third. Maxwell made a pretty race and was roundly cheered when he flashed under the wire a winner.

Obstacle and flag races were to have been run, but owing to the lateness of the hour, they were dropped from the program.

Cleveland Club Reorganization.

Special Correspondence.

CLEVELAND, Sept. 28.—Some of the leading members of the Cleveland Automobile Club are quietly planning a crusade to practically reorganize the club, electing to official positions for the ensuing year only private owners of cars who will work energetically for the best interests of the organization. It is proposed to lease a clubhouse in the downtown section of the city and furnish it suitably for club purposes. After that, it is proposed to work for an increase in membership. The plan of first securing a large membership and then building a clubhouse has not been a success and now it is proposed to provide a home that will attract new members.

Deauville 500-Meter Brake-Speed Trials.

A series of 500-meter (1,640 1-2 feet) speed-brake tests were held at Deauville, France, on Thursday, September 10. The rules required that the cars should be timed from a standing start, and at the finish they were obliged to stop on a tape. If they stopped too soon they were obliged to advance the necessary distance; if they went too far they must reverse to the tape, and if they passed the finish line by more than 25 meters (82 feet), they were to be disqualified. The time required to advance to the tape or to reverse the necessary distance was added to the running time for the 500 meters.

Jeandré, on a 70-horsepower Mors (Paris-Madrid type) lowered the world's record, winning the contest for racing cars in 33 4-5 seconds or one-fifth second better than the former record time made by Rigolly on his 110-horsepower Gobron-Brillie, at Uriage, on August 10, the day after the Laffrey hill-climbing trials. Jeandré's speed was at the rate of 33.36 miles an hour.

In the tourist section Cabaillot, on an 8-horsepower De Dion voiturette, won in his class, his time being 1:02, or at the rate of 18.17 miles an hour.

Following is a summary of the results:

RACING SECTION.

Driver.	Car.	Time.
1. Jeandré,	70-horsepower Mors.	:33 4-5
2. Madam Le Blon,	70-horsepower Gardner-Serpollet....	:38 3-5

Light Cars.

1. Beconnais,	40-h. p. Darracq.....	:35
2. Rasson, Clement	.....	:53 1-5

Voiturettes.

1. Wagner,	16-h. p. Darracq....	:35 3-5
2. Molon,	16-horsepower Darracq	:48

Motor Cycles.

1. Durtal, Clement	.....	:39 2-5
2. Pascal, Clement	.....	:44 4-5

TOURIST SECTION.

Class I—Less than $800.

1. Cabaillot, 8-horsep'r De Dion.	1:02
2. G. Roy, 8-horsepower Roy....	1:03 2-5

Class II—Less than $1,600.

1. Renanx, 16-h.p. Peugeot.....	:51 3-5
2. Metivier, 12-h.p. Delahoye...	:55 3-5

Class III—Less than $2,400.

1. Pelzer, Gardner-Serpollet	:42 2-5
2. Van Allen, Chenn.....	:51

Class IV—Less than $3,200.

1. Rasson, Clement.....	:43 2-5
2. Bedel, Gobron-Brillié	:50 3-5

Class V—Less than $5,000.

1. Gasté, Automotrice	1:04

The brake tests at Deauville were organized by *L'Auto* to take the place of the mile and kilometer speed trials over the same course which have been an annual fixture for several seasons. The speed trials were abandoned this year because the Deauville course, perfect in every other way, was considered too short to allow sufficient room for the powerful modern racing cars to stop after having covered the required distance at high speed. The speed-brake tests, while less spectacular than the straightaway trials of previous seasons, were most interesting and instructive. The rules imposed a heavy strain on the cars, particularly on the brakes and clutches, as the vehicles were started, driven and stopped in the quickest possible time. It was found that if the brakes were applied suddenly the cars skidded beyond the tape at the finish, so the drivers were careful to apply the brakes gradually, starting about 150 feet before the tape was reached. The heavy racing cars made the best showing in the trials, as they could be started and stopped very quickly.

In the racing section the cars were classed according to power, and in the tourist according to the market price of the chassis. There were ten competitors in the racing class and eleven in the touring section.

NOTES OF DEAUVILLE TRIALS.

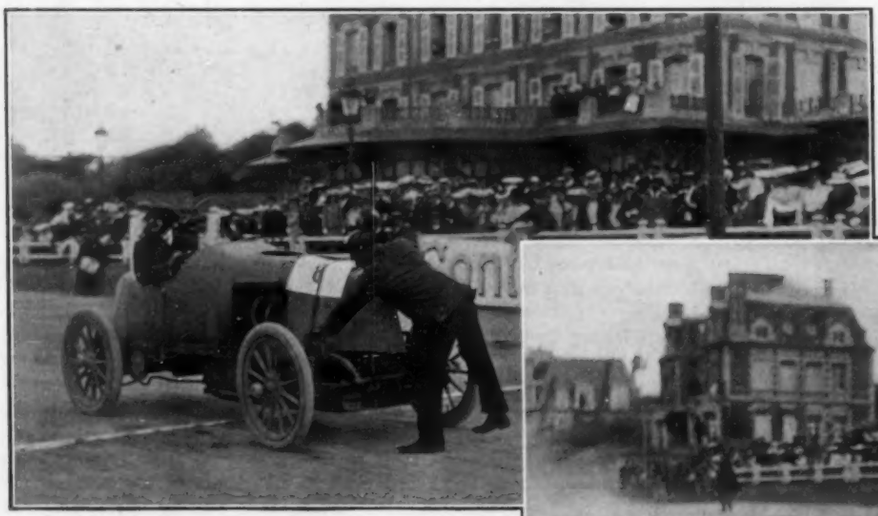
In the racing car section there were only two heavy cars, the 70-horsepower Mors, driven by Jeandré, and the 70-horsepower Gardner-Serpollet, driven alternately by Madame and Monsieur Le Blon.

A Mors timing machine was used to time the cars during the trials, and M. Louis Mors, the inventor, superintended the work.

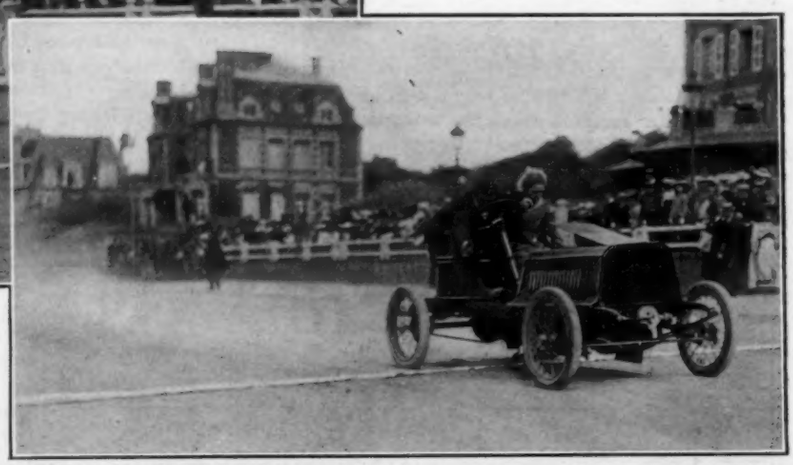
Madame Le Blon was easily the hero of the day. Although it was her first attempt in competitive trials, the conditions of which were unusually severe, she not only won a special medal for women drivers, but had no difficulty in defeating her husband, who later drove her victorious car.

A competing car that attracted especial attention was a 12-horsepower Bardon, fitted with Roussel spring wheels. These wheels are designed to afford sufficient resiliency without the use of pneumatic tires. Instead of spokes, curved steel springs are employed, these springs being fixed to the hub and extending to the inside of the rim, where the outer ends are allowed to move in slides. Although fitted with solid rubber tires it was noticed that the Bardon car was particularly free from vibration.

The 70-horsepower Gardner-Serpollet was fitted with the new flat-tread Michelin tires. The inventor's early attempts with tires of this type were not very successful, owing to the fact that the tires wore off at the edges quickly. M. Michelin has now overcome this difficulty by molding small rectangular squares of iron in the edges, spaced about one-half inch apart. The results seemed most successful. The tread of these new tires is a bout 2 1-4 inches in width



JEANDRÉ (MORS 70 H.P.) WINNER IN HEAVY CAR RACING CLASS.



BECONNAIS (DARRACQ 40 H.P.) FIRST IN LIGHT CAR CLASS, STOPPING.

The rules governing the Deauville brake tests were first proposed by Baron Pierre de Crawhez, who offered a cup for competition at the Uriage and succeeding trials. At Deauville only one car was ready to start. The driver would have been awarded the contest by default if he had not, after crossing the finish line, allowed his motor to stop, for which he was disqualified.

PELZER (SERPOLLET STEAM CAR)—FIRST IN CLASS 3, TOURIST SECTION.

French Club to Buy a Home.

The Touring Club de France has definitely decided upon the purchase of the former hotel of the Humberts, in the Avenue de la Grande Armee, Paris, which in future will be its headquarters. For a long time the club has been without a permanent home, and the project to buy the hotel was accepted only after being sharply contested by members who thought it an unwise investment. The price to be paid was finally fixed at 500,000 francs ($100,000), 200,000 francs to be paid down and the rest in seven annual payments.

Insufficient Space at Paris Show.

Show space at the Sixth International Automobile Show, to be held in the Grand Palais in Paris, is in great demand. The maximum of each stand has been fixed at eighty square meters, and the aisles of the main floor will be narrowed, giving an increase in this space alone of 3,500 square meters over the space occupied last year. The total amount of space obtainable, however, will be quite inadequate, it is reported.

Race Meet at Nashville October 10.

Prominent motorists of Nashville, Tenn., are promoting an automobile race meet for October 10 at Cumberland Park. An attempt will be made to have some of the racing cars from the North in attendance. The meet will come at the end of the Horse Show week, when it is thought it should be a great success. Cumberland Park track is well adapted to automobile racing as the turns are well banked. A feature of the proposed race meet will be a twenty-mile endurance run for cars with road equipment and carrying a full quota of passengers.

Appraiser's Warehouse Facilities Taxed.

Foreign automobiles of the aggregate estimated value of $200,000 were at the appraiser's warehouse in New York on September 22. The number of cars imported into this country is increasing so rapidly that it is anticipated that the Treasury Department will be obliged to rent a building for the exclusive reception of automobiles, as the present storage facilities at the appraiser's warehouse are totally inadequate.

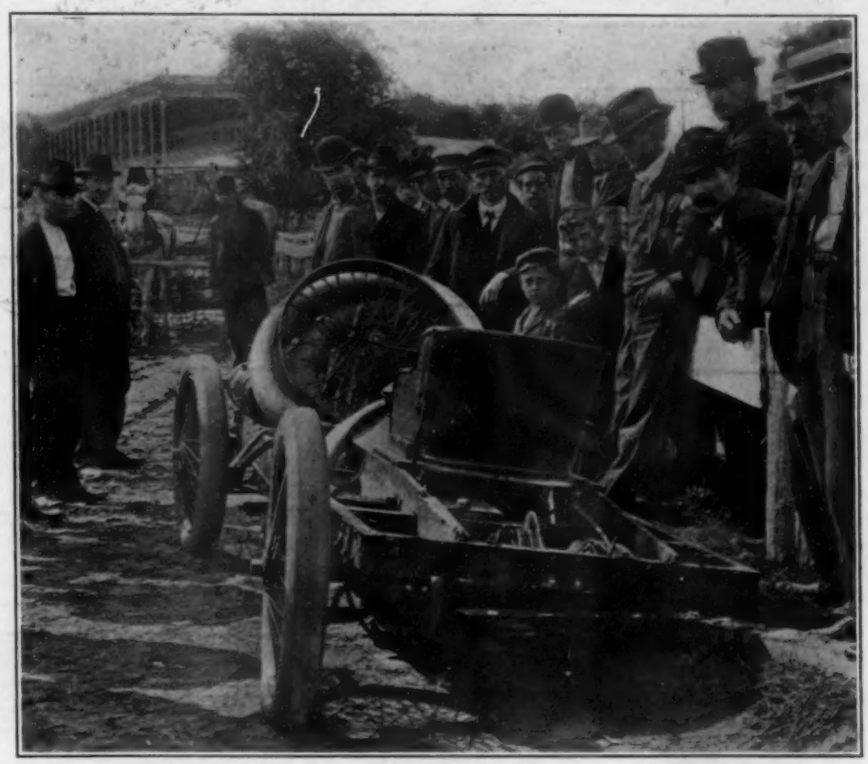
It has been customary to store automobiles on the upper floors of the warehouse, but recently the increased importations have made it necessary to transfer less bulky lines of merchandise to the upper floors, leaving the more spacious lower floor for automobiles, so far as practicable. At present the entire lower floor is inadequate and it is found necessary to store many valuable machines on the piers of the steamship lines until room for them can be made at the appraiser's warehouse.

Promoting First San Francisco Meet.

Automobilists on the Pacific Coast are interested in the announcement that San Francisco is to be the scene of a great automobile race meet, scheduled for Saturday and Sunday, November 7 and 8. Joseph Tracy, 513 Seventh Avenue, New York, has been asked to secure entries for the meet, and he states that Jules Sincholle (Darracq), Henri Paige (Decauville), Carl Fisher (Mohawk), and F. A. La Roche (Darracq), have expressed themselves as willing to attend. This event is to be the first of the kind ever held in SanFrancisco, and if it meets with success it will become an annual fixture.

The Automobile Club of California, which is promoting the meet, proposes to devote the profits, if any, to aid in the improvement of the main roads in various counties of California.

President F. A. Hyde has made application to the Park Commissioners for an extension of the privileges accorded to automobilists in Golden Gate Park, and the committee of the club on law and order has instructions to devote its best efforts to the assistance of the Supervisors and Park Commissioners to carry out the ordinances provided for the regulation of motor cars.



COOPER'S "999" AFTER THE FRANK DAY ACCIDENT AT MILWAUKEE.

New Jersey Experiment with Tarred Roads.

The tarring of macadam roads for the purpose of their preservation and the prevention of dust promises to attract widespread attention.

Although the use of tar macadam for road improvement is not a new idea, the plan of sprinkling coal tar on macadam roads has been brought forward only recently, and should the experimental work now being done in New Jersey and New York States prove as successful as is expected, the tarring of macadamized country roads will probably be carried out extensively.

In the issue of May 23 last, THE AUTOMOBILE published an account of the recent European tests of "Tar as a Road Material," and in the issue of July 11, under the caption "Tarred Roads in America," it outlined the advantages of the use of tar in the construction of new roads and gave a report of experiments with tar as a road material in Canada. While the European tests showed that the durability of the old macadam was much increased by the coating of tar, it was found difficult to obtain the most favorable condition for applying this coating, the roads having been in use for a long time after improvement and not presenting the even surface of a newly constructed road.

Since many of our improved roads are comparatively new, it occurred to some that the tarring of improved roads could be carried out with greater success in this country than in Southern Europe, the scene of the most important tests. On a new road it would be comparatively easy to remove the dust and loose dirt and stones, leaving a smooth, hard surface, free from moisture, on which to sprinkle the hot tar. The dust and gravel could then be thinly spread over the tar and the road rolled, when, it was believed, the tar would bind the stone particles together into a crust that would shed water effectively and allay the dust nuisance. Acting upon this conviction, and encouraged by the information contained in the two articles mentioned, the Barrett Mfg. Co., 17 Battery Place, New York, a producer of coal tar, has taken the initiative and is tarring several strips of macadam road in New Jersey and New York.

The first strip of road was tarred last week. It was a piece 1,000 feet long by 16 feet wide on Mountain Avenue, just outside of the town of Westfield, Union County, New Jersey. Part of this strip was sprinkled with the hot tar, the dust and loose dirt on the surface being allowed to remain as they were. After the tar had thoroughly soaked into the surface of the road, a road roller was run over it. The other half was thoroughly cleaned, all the surface dirt being scraped and swept to one side. Then, after the road had been thinly sprinkled with tar, the surface dirt, consisting mainly of macadam screenings, was spread over the tar by men wielding shovels and the whole road well rolled. After the tar had been on the road for three hours it was found to have saturated the hardest places to a depth of half an inch.

TARRING ROAD AT WESTFIELD, N. J.—Sweeping Loose Dirt Off of Road Surface and Pouring on the Melted Tar.

The Barrett Company tarred this piece of road as an experiment. Many road commissioners from New York and New Jersey were in attendance to see the work while it was in progress, and it is certain that the surface of that particular piece of roadway will be watched critically, in storm and sunshine, for some time.

The work of cleaning away the dust and screenings, and of sprinkling the tar was, of necessity, very crudely carried out,

and it was estimated that the expense for tarring a mile of sixteen-foot road would, by this method, approximate more than $400. About 300 gallons of hot tar would be required per mile. The tar was sprinkled on the road from large four-gallon water-

PREPARING ROAD FOR TARRING.

ing cans, and the dust and screenings were handled entirely with hoes, shovels and brooms. With improved facilities for carrying out the work on a large scale and rapidly, the expense would be materially reduced.

H. W. Merkel, chief forester of the zoölogical section of the Bronx Park, New York City, who attended the tarring of Mountain Avenue, in Westfield, stated that he was very favorably impressed with the idea, and proposed to try the same thing in the Bronx Park on a section of the East River walk along the banks of Bronx Brook. A section of Cropsey Avenue, Bath Beach, Brooklyn, is also being tarred as an experiment. The Massachusetts Highway Commission is also about to make experiments on some of the State highways near Boston.

Aside from the difference in initial expense, it is thought that tar will prove superior to crude petroleum for roads, since it binds the surface of the road into one hard mass, and with a good, even macadam surface forming a crust that sheds water perfectly and is not easily cut up into ruts by hoofs and narrow wheels.

ROAD SIGNALS ADOPTED BY THE AMERICAN MOTOR LEAGUE.

The American Motor League has undertaken a practical and useful work that will be appreciated by automobilists and others. The plan is to erect signals along roads frequented by tourists, where it is desirable or necessary that instructions or warnings should be given.

Referring to the proposed signals, which are shown in the accompanying illustration, No. 1 indicates an approach to a steep descent; No. 2, approach to a railroad crossing; No. 3, approach to a branch road (to right); No. 4, approach to branch road (to left); No. 5, approach to cross roads; No. 6, approach to a ditch or abrupt depression in the road; No. 7, approach to a hummock or "thank you ma'am"; No. 8, approach to a city, village or other collection of inhabited dwellings; No. 9, a general caution signal indicating the proximity of any danger or obstruction not scheduled above, as, for example, a wrecked bridge, a temporary excavation in the roadway, a broken down vehicle in the road, the moving of a building across the highway, the presence of a crowd or assemblage of people immediately ahead, or any other condition requiring caution.

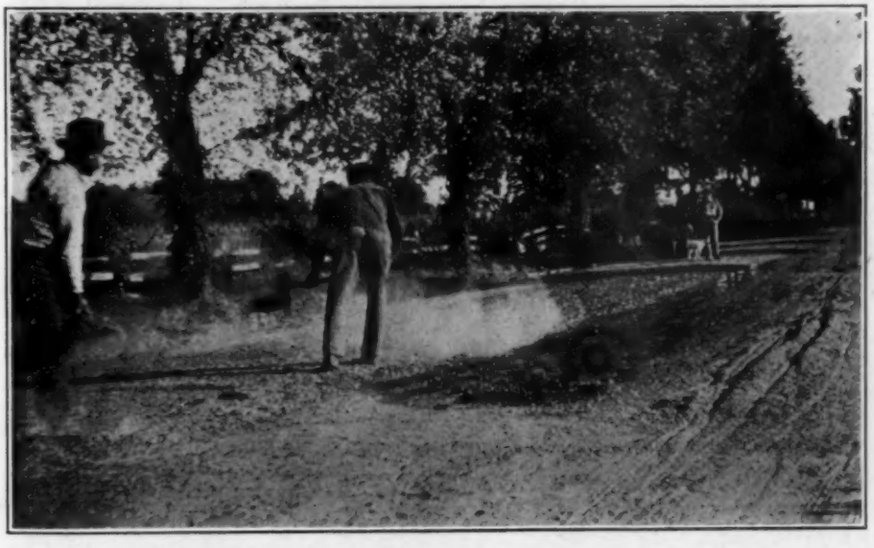
The Motor League will erect these signs at its own expense in the Metropolitan district, and in other sections of the country where its local counsels recommend, although an effort will be made to secure the co-operation of the various automobile clubs, the League hotels, garages, automobile agencies, and others who will directly benefit by the work. The signs will also be put on the market and sold at their actual cost to clubs or other associations desiring to erect them. If manufacturers desire to take advantage of the signs for advertising purposes, the signs will be furnished with their names printed on in not too conspicuous letters. The cost of the signs, which are of sheet steel, twenty-four inches square, enameled white with signal designs painted in black, will be about $1 each. The League is prepared to supply all interested parties with instructions for making wood signs, should they not wish to go to the expense of securing metal signs.

A similar work to that now being pushed forward by the American Motor League has been accomplished in certain sections of England and on the Continent with gratifying results, and equal benefits to users of the roads will, no doubt, be attained in this country.

The signals, which may appear odd at first, have been adopted because their significance can be memorized readily, while they tell their story at a glance.

SYMBOLIC MOTOR LEAGUE ROAD SIGNS.

Further particulars regarding this and other work which is now being instituted by the American Motor League can be secured by applying to the national headquarters, 150 Nassau Street, New York.



SPREADING DUST AND SCREENINGS OVER THE TARRED SURFACE.

Plans an Automobile Drive.

Park Commissioner Richard Young, of Brooklyn, N. Y., recently petitioned for an appropriation of $802,454 for the improvement of parks, parkways and driveways in Brooklyn and Queens, but the Board voted only $50,000. One of the most important improvements suggested by Commissioner Young was an automobile drive fifty feet wide for the Shore Road. He proposed to widen the present cycle path and require automobilists, motorcyclists and bicyclists to keep on this and off the general driveway. The cost of the change would be $225,000.

Frank Croker, who piloted Dr. Jackson across the country in a Winton, is in Chicago, where he may enter one of the local agencies.

Entries for the N. A. A. M. Endurance Run from New York to Cleveland and Pittsburg, October 7 to 15, with Official Data.

Number	Class	Name of Car	Name of Maker	Name of Operator	Weight in Lbs.	Price	Water Capacity, Gals.	Gasoline Capacity, Gals.	Number of Passengers	Engine: Location and Position of Engine	Engine: 2 or 4 Cycle	Engine: Number of Cylinders	Engine: Bore and Stroke, Ins.	Engine: R. P. M. at 20 Miles	Engine: Form of Ignition	Size of Wheels, Ins.	Wheelbase in Inches	Tires: Make of Tires	Tires: Single or Double	Tires: Size of Tires, Ins.	Tires: Retail Price Per Tire.
1	G	Columbia	Electric Vehicle Co	Harry Sandol	3,100	$5,000	10	20	6	Front Vertical	4	4	5 x 5	800	Jump.	34	96	Diamond	Dbl.	4	$55.80
2	G	Columbia	Electric Vehicle Co.	B. B. Holcomb.	3,100	5,000	10	20	6	Front Vertical	4	4	5 x 5	800	Jump.	34	96	Diamond	Dbl.	4	55.80
3	G	Columbia	Electric Vehicle Co.	L. Duffie.	3,100	5,000	10	20	6	Front Vertical	4	4	5 x 5	800	Jump.	34	96	Diamond	Dbl.	4	55.80
4	D	White	White Sewing Machine Co.	George S. Waite.	1,675	2,060	15	15	4	Front Vertical	Stm	2	Bore, 3 and 5 Ins. Stroke, 3 1-2	670	None	30	80	G & J.	Dbl.	4	55.00
5	D	White	White Sewing Machine Co.	Webb Jay.	1,675	2,060	15	15	4	Front Vertical	Stm	2		670	None	30	80	G & J.	Dbl.	4	55.00
6	D	White	White Sewing Machine Co.	P. H. Deming.	1,675	2,060	15	15	4	Front Vertical	Stm	2		670	None	30	80	G & J.	Dbl.	4	55.00
7	F	Peerless	Peerless Motor Car Co.	H. D. Savage	2,400	3,500	?	15	4	Front Vertical	4	4	?	600	Jump	34	92	?	Dbl.	4	?
8	F	Peerless	Peerless Motor Car Co.	C. G. Wridgway	2,400	3,500	?	15	4	Front Vertical	4	4	?	660	Jump	34	92	?	Dbl.	4	?
9	G	Toledo	Pope Motor Car Co.	M. W. Winters	2,700	4,500	5	15	4	Front Vertical	4	4	4½ x 5½	900	Jump.	34	94	G & J.	Dbl.	4	?
10	C	Toledo	Pope Motor Car Co.	George Soules.	1,900	2,000	5½	10	4	Front Vertical	4	2	4½ x 5½	900	Jump.	30	76	G & J.	Dbl.	3½	?
11	B	Stevens-Duryea	J. Stevens Arms & Tool Co.	Otto Nestman	1,320	1,250	5	6	2	Center Horizontal	4	2	4½ x 4½	592	Jump.	28	69	Fisk.	Dbl.	3	27.50
12	B	Stevens-Duryea	J. Stevens Arms & Tool Co.	J. Frank Duryea	1,320	1,250	5	6	2	Center Horizontal	4	2	4½ x 4½	592	Jump.	28	69	Fisk.	Dbl.	3	27.50
13	C	Phelps	Phelps Motor Vehicle Co.	L. J. Phelps	1,500	2,000	8	8	4	Front Vertical	4	3	4½ x 4½	900	Primary.	30	84	Diamond	Dbl.	3	26.00
14	D	Arrow	The George N. Pierce Co.	Charles Sheppy	1,960	2,500	4	10	4	Front Vertical	4	2	3 x 4	900	Jump.	32	81	Goodrich	Dbl.	3½	45.00
15	B	Pierce	The George N. Pierce Co.	Percy P. Pierce	1,250	1,200	6½	5	4	Rear Vertical	4	1	3 13/16 x 4 5/16	1,900	Jump.	28	70	Goodrich	Dbl.	3	24.00
16	D	Old Pacific	Packard Motor Car Co.	E. T. Fetch	2,200	2,500	6	10	2	Center Horizontal	4	1	6 x 6½	625	Jump.	34	88	Diamond	Dbl.	4	55.80
17	A	Rambler	Thomas B. Jeffery & Co.	Edward Collier.	1,350	750	3½	6½	2	Center Horizontal	4	1	5 x 6	907	Jump.	28	78	Diamond	Dbl.	3	25.25
18	A	Rambler	Thomas B. Jeffery & Co.	Arthur Gardiner	1,350	750	3½	6½	2	Center Horizontal	4	1	5 x 6	907	Jump.	28	78	Diamond	Dbl.	3	25.25
19	B	Fredonia	The Fredonia Mfg. Co.	C. F. Gaither	1,700	1,250	3½	9	4	Center Horizontal	4	1	6 x 6½	840	Jump.	30	84	Diamond	Dbl.	3	28.00
20	A	Fredonia	The Fredonia Mfg. Co.	F. L. Thomas	1,300	1,000	3½	8	2	Center Horizontal	4	1	6 x 6½	700	Jump.	32	73	Diamond	Dbl.	3	29.60
21	F	Searchmont	Searchmont Automobile Co.	L. S. Chadwick.	2,900	4,000	8	30	4	Front Vertical	4	4	4½ x 5	800	Jump.	34	94	Diamond	Dbl.	4½	77.92
22	A	Covert	B. V. Covert & Co.	B. V. Covert.	750	750	3	4½	2	Front Vertical	4	1	4 x 4½	1,200	Jump.	28	68	Dunlop.	Dbl.	2½	10.00
23	B	Knox	Knox Automobile Co.	Howard M. Davis	1,850	1,250	None	8	4	Center Horizontal	4	1	5 x 8	770	Jump.	30	72	Fisk.	Dbl.	3½	32.00
24	D	Knox	Knox Automobile Co.	J. E. Cowan	2,450	2,200	"	18	4	Center Horizontal	4	2	5 x 7	650	Jump.	32	84	Fisk.	Dbl.	4	40.00
25	D	Knox	Knox Automobile Co.	Frank H. Fowler	2,400	2,200	"	16	4	Center Horizontal	4	2	5 x 7	650	Jump.	32	84	Fisk.	Dbl.	4	40.00
26	B	Franklin	H. H. Franklin Mfg. Co.	W. H. Bex	1,100	1,300	"	7	2	Front Vertical	4	4	3½ x 3½	1,000	Jump.	28	72	Goodrich	Dbl.	3	21.00
27	B	Franklin	H. H. Franklin Mfg. Co.	C. A. Benjamin	1,100	1,300	"	7	2	Front Vertical	4	4	3½ x 3½	1,000	Jump.	28	72	Diamond	Dbl.	3	21.00
28	B	Franklin	H. H. Franklin Mfg. Co.	John Wilkinson	1,100	1,300	"	7	2	Front Vertical	4	4	3½ x 3½	1,000	Jump.	28	72	Goodrich	Dbl.	3	21.00
29	B	Haynes-Apperson	The Haynes-Apperson Co.	George Barnes	1,430	1,450	6	6	2	Rear Horizontal	4	2	5 x 5	550	Jump.	32	75	Diamond	Dbl.	3	25.00
30	B	Haynes-Apperson	The Haynes-Apperson Co.	Frank Nutt	1,430	1,450	6	6	2	Rear Horizontal	4	2	5 x 5	550	Jump.	32	75	Diamond	Dbl.	3	25.00
31	D	Haynes-Apperson	The Haynes-Apperson Co.	H. W. Lanterman	2,350	2,500	10	12	4	Front Horizontal	4	2	5½ x 6½	420	Primary	32	80	Diamond	Dbl.	4	35.00
32	A	Northern	Northern Mfg. Co.	V. M. Gunderson	1,000	800	4	8	2	Center Horizontal	4	1	4½ x 6	840	Jump.	28	70	Dunlop.	Dbl.	3	20.80
33	A	Northern	Northern Mfg. Co.	A. W. Hall	1,000	800	4	8	2	Center Horizontal	4	1	4½ x 6	840	Jump.	28	70	Fisk.	Dbl.	3	25.00
34	A	Northern	Northern Mfg. Co.	F. D. Homan	1,000	800	4	8	2	Center Horizontal	4	1	4½ x 6	840	Jump.	28	70	Goodrich	Dbl.	3	28.40
35	E	Stearns	F. B. Stearns Co.	F. B. Stearns	3,000	3,000	8	18	6	Center Horizontal	4	2	5½ x 6½	400	Jump.	34	96	Goodrich or Diamond	Dbl.	4 front / 4½ rear	63.75F. / 77.92R
36	G	Locomobile	Locomobile Co. of America	A. L. Riker.	2,300	4,000	7½	15	4	Front Vertical	4	4	4 x 5	600	Jump.	34	82	Diamond	Dbl.	4	63.75
37	A	Holley	Holley Motor Co.	George M. Holley.	880	650	3	5	2	Front Vertical	4	1	3½ x 4	1,600	Jump.	26	56	Hartford	Dbl.	2½	10.00
38	G	Springer	The Springer Motor Vehicle Co.	Frank T. Clark.	2,500	7,000	None	20	7	Front Vertical	4	4	5 x 6	400	Primary	36	98	Goody'ar	Dbl.	4	74.50
39	A	Oldsmobile	Olds Motor Works.	E. R. Doan.	920	650	4	5	2	Center Horizontal	4	1	4½ x 6	850	Jump.	28	67	Diamond	Dbl.	2½	12.50
40	A	Oldsmobile	Olds Motor Works.	D. J. Wurges	920	650	4	5	2	Center Horizontal	4	1	4½ x 6	850	Jump.	28	67	Diamond	Dbl.	2½	12.50
41	A	Oldsmobile	Olds Motor Works.	Frank A. Wall	920	650	4	5	2	Center Horizontal	4	1	4½ x 6	850	Jump.	28	67	Diamond	Dbl.	2½	12.50
42	B	St. Louis	St. Louis Motor Carriage Co.	G. P. Dorris	1,700	1,500	7	10	4	Front Horizontal	4	1	5½ x 6	741	Jump	30	80	Diamond	Dbl.	3½	42.00

Class A—Cars retailing for $1,000 and less. Class B—$1,001 to $1,500 inclusive. Class C—$1,501 to $2,000 inclusive. Class D—$2,001 to $2,500, inclusive. Class E—$2,501 to $3,000 inclusive. Class F—$3,001 to $3,500 inclusive. Class G—Cars selling for more than $3,500. For other information, see page 357.

The Fall Tour of the A. C. A.

[BY C. H. GILLETTE.

BOSTON, Sept. 27—In October, 1902, the Automobile Club of America held a Reliability Run to Boston and return. It was an endurance test into which the manufacturers entered for the purpose of demonstrating to the public the reliability of their cars in a road test. Observers were furnished by the club and their minute reports of the performance of the cars were made the basis of awards of medals and certificates.

The results of last year's run were satisfactory to all concerned. The large majority of the cars entered proved their adaptability to touring purposes and more than 75 per cent. of the starters finished with high marking.

Contests of this sort are of the utmost value and importance in the development of the American automobile. The test should obviously be made more difficult each year. This fall the National Association of Automobile Manufacturers will manage the contest and is providing for a more thorough test in the selection of route and system of marking.

It is fitting that the National Association should handle these contests now and leave the club to conduct runs of a different nature. The present club run is, therefore, solely a pleasure tour, open only to members and their guests, and managed without the red tape of observers, controls, speed limits, etc. Those who participate do so solely for personal enjoyment and not for the purpose of proving the worth of their cars.

There are absolutely no rules whatever, and each participant may start when he chooses, stop when he chooses and take any road he chooses. To preserve the club run feature, the night stops were designated and every one was supposed to rendezvous there. To sum up the above outline of the difference between the club run last year and that of this season, the former was for business and the present one is for pleasure.

Up to the time of reaching Boston the run has been an entire success, and every one has thoroughly enjoyed it. The weather has been ideal and the roads in as good condition as possible. Every one has gone his own gait and from his individual standpoint enjoyed the trip to the utmost.

Twenty-one cars were registered at the clubhouse Friday morning as starters, but some of them dropped out and only sixteen actually came through to Boston. From Boston on there will be several more cars, as some of the club members in this vicinity will join the run and make the return trip.

Of the starters, Frank Eveland, in an Autocar, was the first away from New York. He left about 6 o'clock and made the day's run through to Hartford without a stop, arriving there at about 2 o'clock. His early start is something of a joke on one of his friends, who suggested an early start was desirable as the trip was quite long and the dust from other cars would be very objectionable. Mr. Eveland finally submitted to the inconveniences of a 6-o'clock start, and was on time to the minute, but Morpheus had too firm a grip on the friend, who overslept and did not get away until an hour and a half later, and had to take the dust and be satisfied with a later arrival in Hartford.

M. D. Chapman, in a 10-horsepower Mors, was the next away, and he carried with him Harlan W. Whipple. Mr. Whipple has always been one of the most enthusiastic members of the club in all of the runs to date, but his present car, a 20-horsepower Mercedes, is at present in Baltimore being overhauled after a racking trip through the Allegheny Mountains. He was most disappointed not to have a car to enter in the run, but nevertheless seems to be having a good time.

The next away from the club was Mr. E. Weston, of Newark, in a Mors car. Tire trouble seemed to be Mr. Weston's bugbear, for he had hardly started before he had a puncture, and between New York and Hartford he was obliged to stop five times from this cause. It certainly was discouraging, but, like a true tourist, he went on his way believing that each puncture would be the last.

C. H. Gillette, in a 12-horsepower Toledo, was the fourth to start, and he was followed closely by Emerson Brooks, in a Cadillac. Paul H. Deming, in a White, was the next away, and shortly afterwards Albert R. Shattuck, in his familiar Panhard, left the plaza.

The next to leave were Elmer Apperson, in an Apperson Bros. car, and C. T. Adams, in an Oldsmobile. Geo. F. Chamberlin, in a White, left at 8 o'clock, as also did J. O. Black, in a Winton. Soon afterward Dr. Lewis Morris started out in a Fiat and then came M. M. Belding in a Peerless. At 9.30 R. L. Morrell left in a gasoline Locomobile and F. G. Webb in a Winton. Jefferson Seligman started in his Rochet-Schneider. A little later L. K. Lichtenstein and R. M. Owen started in Franklin cars.

Shortly after 10 o'clock, Kenneth A. Skinner, in his De Dion racer, left. Jas. L. Breese drove his 40-horsepower Mercedes, and Col. John Jacob Astor in another Mercedes was the last to leave.

It would be a difficult matter to pick out two more beautiful days for automobiling than Friday and Saturday of last week. The sky was cloudless and a most delightful cool breeze made riding comfortable. There had been no bad weather for several days and the roads, barring a little dust, were perfect. The route taken is one of the most delightful imaginable as it goes through some of the most beautiful sections of New England. Those who were so fortunate as to be unable to make the trip have the sympathy of those whose good fortune it was to enjoy it.

Sixteen of the starters reached Hartford in time for the club dinner at the Allyn House; and, as is customary when automobilists get together, they talked over the day's run and exchanged stories of the trip. This relating of incidents and experiences is one of the most enjoyable features of a club run, where every one has a common interest and can appreciate the misfortune or success of another.

CARS OF A. C. A. MEMBERS IN NEW HAVEN READY TO START FOR HARTFORD.

There were at least two participants who could thoroughly sympathize with each other—Jas. L. Breese and K. A. Skinner had a common experience in Larchmont and it cost them each $25 and costs The authorities there are very strict in the enforcement of the speed ordinance, and, assuming that there would probably be some infraction of the regulations on a club run, were on the lookout for offenders. It is surprising that they did not get more, and also that they succeeded in picking out two of the fastest cars in the run.

The conversation at these "get-together" dinners is largely as follows: "Do you remember that bad piece of sandy road just beyond Wallingford?" "I certainly do. I got skidding there once and, nearly went into the ditch." "Well, when I came through there I met a hay-cart and when I tried to pull out, my wheels were in the ruts and I nearly ran it down," etc., etc.

Nearly everyone who has ever been over the road between New York and Hartford can relate the common experience of running into an exceptionally bad "rain-gully." It is at the bottom of a little down-grade and for some reason or other, no one ever sees it until too late to avoid plunging into it with a crash that is sometimes fatal to springs and axles. Some of those who have been over the road several times and remembered the spot were able to escape it Friday, but the majority had the same tale to tell of going into it at full speed.

As usual, there were a few who got off the road, and just where and why they did it was the subject of no end of discussion. It was laughable when the Chairman of the Runs and Tours Committee of the club and the editor of the Blue Book went astray together, particularly as both had been over the road before, and of all on the run were supposed to know it most thoroughly. Their only defense is that the right road was torn up and looked unfamiliar and impassable.

Speaking of impassable roads, there was one place at East Brookfield that was about as bad as could well be imagined. In building State roads in Massachusetts, it seems to be a common practice to tear up the entire width of the road and make the teams either go around by another road or take to the bank or the fields. In this case there was no convenient road around the spot, and the bank was high above the road-bed and as rough as a Vermont cow-pasture. There were rocks and roots of trees and ruts galore, which in connection with a slope of about 45 degrees toward the road several feet below made things rather dangerous. To make matters worse, it was an up-grade of about 10 per cent. It is a marvel that there were no accidents and it speaks well for the skill of the drivers.

Although the run to Hartford is a matter of 121 miles, everyone got there before 7 o'clock and after the dinner had plenty of time to rest up for a still longer and harder run the next day. The start from Hartford was made fairly early by almost everyone and 8.30 saw nearly all of the sixteen cars on their way to Boston.

The first to leave was K. A. Skinner and as he was running toward his home city and wished to be the first in he started at 5.30 and got to Boston at half-past one, his elapsed time being only eight hours. Frank Eveland was the second to arrive, although he lost some time on account of getting off the road.

Paul Deming was next to register and then came Col. Astor and Jas. L. Breese. It is said that these gentlemen had quite an argument on the road as to which was the better of their two like machines. Both cars are 40-horsepower Mercedes and it must have been a pretty race.

From Springfield to Worcester there is considerable poor road with many bad hills. There was not a single car on the run, however, that had any trouble in negotiating either and all of the sixteen that left Hartford arrived in Boston before 7 o'clock. Last year three days were given to make the same trip and this year those who participated in last year's run say that it has been much easier and more enjoyable to make it in two days.

From Worcester into Boston the roads are splendid, but very difficult to follow. More than half of the tourists got off the route in coming through the "'boros," that is, Northboro, Southboro, Westboro, and Marlboro.

There was no entertainment provided for Saturday night, but on Sunday the Massachusetts Automobile Club gave a luncheon and then escorted the tourists on a run to the historic Wayside Inn at Sudbury, about 27 miles out from Boston. The roads were perfect all of the distance and although the sky was overcast and there was an occasional "sprinkle," the run was most thoroughly enjoyed. Nearly all of the tourists went out on this run of over 50 miles, and, although the start was not made until 3 o'clock, got back to Boston before 6.

The next entertainment on the program was a dinner at Young's Hotel, and here was a repetition of the good time at the Allyn House in Hartford only with much more to talk about. By the time Pittsfield is reached there will be still more, for the roads and hills between Springfield and Pittsfield are a little worse than anything encountered on the route. The route selected is what is known as the lower road, that is, the one through East Lee and from there to Lenox. This route although somewhat shorter than the upper road through Worthington and Peru, is not quite so good. It was originally selected because the night stop was to be made at Lenox, and as some will doubtless stay over night there it will not be changed.

There is one feature of this tour which is of practical value, that is the demonstration of the American cars in comparison with the foregin makes. Nearly half of the cars are of foreign make and yet as far as getting along comfortably and reaching the destination on time is concerned they are doing no better than the American cars. Of course they are faster than the majority of the domestic cars, principally because they are of higher horsepower, and yet they are no more successful in getting through poor roads and up the steep hills than are our own.

It is instructive to note that there have been no accidents and no "break-downs." Everything has been as smooth as clockwork, and barring the usual tire troubles and sparking difficulties (which has been remarkably small), no one has had any trouble whatever. This, considering the length and difficulties of the tour, is very gratifying.

The only thing to be regretted is that more of the club members did not participate. Several, however, are going to join the run during the return trip and the return to New York will doubtless show more cars than did the start.

Frank Eveland was obliged, on account of business, to start back Sunday and will be missed on the return run. Col. Astor left Boston, almost immediately after arriving, for Newport. These two are the only ones to drop out.

Everyone is looking forward to the run through the Berkshires with pleasure. The route taken is through the most beautiful part of Massachusetts. The cool weather has already begun to turn the foliage and the landscape is brightened by bits of color on every side. It is the ideal time of year for touring, and if the weather remains as clear and beautiful during the remainder of the run as it has been up to the present, there will have been nothing to mar the pleasures of the trip and its memory will remain long with those who have taken it.

The Return Trip Begun.

Special Correspondence.

BOSTON, Mass., Sept. 28.—Fourteen of the twenty-one automobiles which left New York Friday morning for the fall pleasure run of the Automobile Club of America, started out from the Hotel Touraine in this city this forenoon for the third day of the run. This is to Springfield. Seldom has Boston seen such a gathering of automobiles of the world-famous types as have been in the city since Saturday night, and, as a consequence, the New Yorkers were closely watched.

They were generous in their praises of the facilities offered to automobilists in Boston. The principal garages, both the general ones and those maintained by automobile companies, are near the landing hotels, so that there was no inconvenience in the care of cars.

Correspondence

C. W. Gray's Record-Breaking Trip.

Editor THE AUTOMOBILE:

Sir:—The enclosed copy of a letter telling of the trip of President C. W. Gray, of the Chicago Automobile Club, and J. E. Ellis, from Cleveland to Chicago in Mr. Gray's touring car, may be of interest to you and may be quoted if you desire.

PEERLESS MOTOR CAR CO.,
S. F. Throstler.

Cleveland, O., Sept. 26.

"Dear Mr. Throstler:—I have your very kind favor of the 19th, and in answer to the same, I beg to state our trip as briefly as possible, as the enclosed clipping from the *Inter Ocean* will very nearly explain itself:

"As you are well aware, leaving Cleveland at 3 o'clock in the rain, we proceeded through such towns as Elyria, Belleview, Clyde to Fremont, which makes, according to the road map, 120 miles, which was covered with mud from three to six inches deep all the way. We managed to pull through this, reaching Fremont at midnight, but previous to reaching Fremont—as near as we can calculate, four miles this side—we had a very unfortunate accident. Speeding along in order to make this town, with our lights on, we came in contact or head-on collision with a horse and buggy with a top on. We were holding the right side of the road, while the driver of the horse and buggy was holding the left. The horse saw our lights and jumped a few feet to the left, but the buggy struck us square on the right side, demolishing all the lights on that side, the mud guards, and also breaking the driver's seat. We managed to stop the wagon after some difficulty, on account of the front rim of the buggy being tangled up in our emergency brake and speed lever. Mr. Gray was at the wheel and stopped about 100 feet from the time we hit the wagon.

"Being without lights, we secured a light and walked back to where the buggy was turned over, and found a young man about seventeen years of age was driving this horse and buggy. He was just getting on his feet and remarked that he must have been asleep, and inquired if he did any damage to us. I told him he could thank his Maker that he had not been killed. Upon questioning him, we found that he had been fast asleep and somewhat intoxicated, the reins were about his neck, and that was the only thing saved him from instant death, as when the buggy struck the automobile, the horse was freed from the buggy, which threw him completely over the dashboard into the mud. We picked up what remained of the buggy and pushed it to one side, and the young man stayed at a farmhouse that night. In the meantime, we wasted two hours in repairing our steering gear, as it was bent very much and completely out of alignment.

Reaching Fremont about 12 o'clock at night, we deemed it good policy to rest. We rose early in the morning, fixed the machine, and left Fremont at 8 o'clock A. M., running straight to South Toledo. At this point we had a very unfortunate experience for a few minutes. Mr. Gray, in his efforts to make time, slipped the first speed too fast and broke the cogs in the transmission on the first speed, which left us with second and third speeds to proceed on our journey; therefore, having no way of reversing. During all this time the roads were in frightful condition. We passed through Bryan and finally reached Butler, Ohio, at 8.30 that night.

Leaving Butler at 5 o'clock the next morning, our clutch began to slip and we were delayed one hour on the road repairing the same. Reaching Waterloo about 7 o'clock Sunday, A. M., we secured some resin, inserted the same in the clutch and proceeded through Goshen and Elkhart, arriving at South Bend at 1.45.

"Having filled up the tanks with gasoline and water, we left South Bend at 2.23 P. M. and made the run to La Porte, which is twenty-eight miles, in one hour and four minutes, actual time, stopping three times to care for frightened horses, and I may add we stopped on the road a great many times to let these frightened animals pass us. From La Porte we proceeded through Valparaiso, Hobart, Hammond, and reached the Chicago Automobile Club at 7.58 P. M.

The writer has figured the distance and time, and in figures we were out 52 hours; 13 hours were spent in rest and repairs, which allows us 34 hours of running time from Cleveland to Chicago, or otherwise two days and a half.

Mr. Gray, as well as myself, feels there is no difficulty in making that run in six hours less than what we did it in, but as it so happened, we have beaten any previous record by five hours.

There is hardly anything else to say about the trip as the engine and the Peerless wagon worked beautifully.

When I consider the distance of 540 miles, with the very slight injuries we had, it is really remarkable. Mr. Gray and myself will make a run from Chicago to New York as soon as we find the roads are in fairly good shape.

"I would like to ask if you will be so kind as to send me the Cleveland papers, and also the photograph of the machine that was taken in front of the Hollenden House.

J. A. ELLIS.

Chicago, Sept. 22.

C. W. GRAY AND J. A. ELLIS LEAVING HOLLENDEN HOTEL, CLEVELAND.

Attractions of Pine Hill, N. Y.

Editor THE AUTOMOBILE:

Sir:—It may be of interest to your numerous readers to know something about Pine Hill in the Catskills, where the contestants in the Endurance Run of the N. A. A. M. will spend the first night. It is situated on the Ulster & Delaware Railroad, thirty-five miles northwest from Kingston, 1,700 feet above tidewater, and is the most picturesque spot in the Catskill region. It has thirty-four hotels and boarding houses, with accommodations for from ten patrons up to 450, and in all can provide for 2,000 persons.

It is an ideal place for autoists, it being on what was formerly called the Old Post Road to Buffalo. Just below the village you strike the State road, which is now in process of completion from Kingston up, and tourists in the near future will have one of the best roads to speed over to be found in the State. It has a large cottage element, among whom are Julia Marlowe, the actress; the family of the late Prof. Henry Morton, formerly president of Stevens Institute, Hoboken; Chancellor McCracken of New York University; Henry O'Neill, the founder of the dry goods firm of H. O'Neill & Co., New York City, and others, representing in all an expenditure of more than $150,000 for cottages alone.

Mr. Robert Bruce, in a recent article in the *Automobile Magazine*, seems to be much afraid that the tourists will not get enough to eat, and advises taking along camping outfits. The writer, who has spent five seasons in Pine Hill, is prepared to say that no better accommodations for hotels of their class can be found than the Cornish House and the Alpine, where the majority of the Endurance Run party will be quartered.

The ride from Kingston along the Esopus will be a delight for the tourists. There are, of course, stretches of poor road, but nothing compared to the difficulties which will be met in the latter part of the journey.

H. P. R.

Cornwall, N. Y., Sept. 28.

Runabout Climbs Mount Washington.

Editor THE AUTOMOBILE:

Sir:—Mr. T. P. Driver, of Melrose, and the writer started from Melrose Friday afternoon, September 11, to attempt to climb Mount Washington. We reached the base of the mountain on Saturday night and started early Sunday morning on the climb.

The mountain is over a mile in height and has a carriage road to the top. The distance to the top by road is eight miles, with an average grade of 12 1-2 per cent. The ascent so far has never been made by any gasoline car of less than 12-horsepower. Several steamers have accomplished the feat, but they have been obliged to have a relay of water and gasoline. The road to the top at the present time is sandy and full of stones, with water bars every fifty feet. The grade, we should judge, runs from 6 or 7 per cent. to as high as 30, although it is claimed that some pitches are 38 per cent. grade.

We made the ascent in three hours and twelve minutes, running time, and we used about one and a half gallons of gasoline. The descent was accomplished in forty-two minutes.

A high-powered Toledo gasoline car made the ascent some time ago, and the man running the machine, in an interview with the reporter, stated that no machine of less than 24-horsepower had any license to attempt it, but as we accomplished it with absolutely no trouble, we think we have the advantage over the big machines. The Oldsmobile, which we used, had the regular sprocket and not the new one which we are now receiving. The number of gasoline cars which have climbed the mountain can be counted on one hand. We think this answers the question: Can the Oldsmobile climb hills? We think Mount Washington is the highest peak east of the Mississippi.

FOREST H. PEABODY.

Boston, Mass., Sept. 26.

Buckboard's Eastern and Western Records.

Editor THE AUTOMOBILE:

SIR:—We wish to make an important correction of your report of the recent Cleveland races. You state that Mr. Moffett made a world's record by running the mile in his Buckboard in 2:03.

As a matter of fact, Dr. Kellogg, at the Del Monte races of August 10th, did seventeen miles in his Orient Buckboard all below this figure. In the five-mile handicap for the Del Monte Cup, Dr. Kellogg made the following record: First mile, 2:02 1-5; second mile, 2:02 1-5; third mile, 1:56 1-5; fourth mile, 2:01 4-5; fifth mile, 1:59 2-5. Total, 10:01 4-5. Average less than 2:00 2-5.

And in another race he did the mile in 1:55. Dr. Kellogg had the satisfaction of carrying off silverware equal in value to his machine

These were authorized races, and the times are official. We hope you will give due credit to Kellogg, and the Orient Buckboard for this performance, and to California as a field for automobile sport.

SUNSET AUTOMOBILE CLUB,
Dorville Libby, Jr.,

San Francisco, Sept. 18.

Route from Chicago to Detroit.

Editor THE AUTOMOBILE:

Sir:—I have been asked a number of times about a route from Chicago to Detroit, and think the following condensed information will be of interest. It was furnished by Mr. Frank Riggs, of the Cadillac Automobile Company, who made this trip carrying four adults and two children last week.

J. W. SCOTT.

Chicago, Sept. 26.

Leave Chicago by Michigan Avenue and Grand Boulevard, through Washington Park and Midway to Jackson Park. Leave Jackson Park from the southeast corner near the lake, *via* Bond Avenue to South Chicago.

From South Chicago follow the trolley car tracks to Hammond, Ind. The road is rather poor for a few blocks after leaving South Chicago, but improves after a half-mile or so and is a fine road to Hammond.

From Hammond through Hobart to Valparaiso there is a fine stone road. From Valparaiso through Westville to La Porte the road is gravel with some sand but good going. The road from La Porte to New Carlisle, passing Rolling Prairie, is slightly better. The road through Rolling Prairie is a mile longer and a little better, but the other is good enough.

New Carlisle to South Bend, fine gravel road. South Bend to Mishawaka. A few miles after leaving Mishawaka take right fork at signboard for Goshen. Leave Elkhart a few miles to the left. From Goshen good gravel road to La Grange due east with a slight turn to the north. Leave La Grange over good gravel road, going north. About five miles north, just outside of Lima, turn to the right due east about twelve miles to Orland. North from Orland to Arnold's Corners, then over an angling road into Coldwater. The last few miles into Coldwater are quite sandy.

From Coldwater take Chicago road east to Jonesville; road sandy but fair going. From Jonesville through Moscow and Somerset Centre over Bunker Hill to Clinton. Some of this road is sandy and hilly but the hills are generally hard road and not difficult. The country is beautiful and well worth the trip. For eight or ten miles east of Clinton to Saline the road is fine gravel turnpike. From Saline good gravel road to Ypsilanti. From Ypsilanti follow the trolley to Dearborn. After passing Dearborn take the first turn to the right, entering Detroit *via* Dix Avenue. Roads sandy and poor.

The Lohner-Porsche Motor.

Editor THE AUTOMOBILE:

Sir:—In the issue of September 5 on page 237 of your interesting magazine there appears an article on the Lohner-Porsche system. An illustration of the car accompanies the article, showing the motor driven wheels.

Can you give us the name and address of any company that builds such a motor? We desire same to use it in connection with our kerosine oil motor for commercial vehicle use. We have written to a number of companies building electrical machinery and devices asking for price, size, etc., of a motor for this work without being compelled to use a storage battery.

M. & R. ENGINEERING CO.

New York, Sept. 17.

The Gliddens in London.

Mr. and Mrs. Charles J. Glidden, of Lowell, Mass., the "Farthest North" automobile tourists, who entered the Arctic Circle in Norway on August 16, have returned to London, after completing an automobile tour of 6,670 miles. Mr. Glidden and his wife sailed from Boston in June for England and began their automobile tour through Europe from London. They carried the flag of the Massachusetts Automobile Club, and Mr. Glidden left this flag at Beieren, to be carried still further North by the first automobile tourist to push forward from there.

A Pacific Coast Amateur.

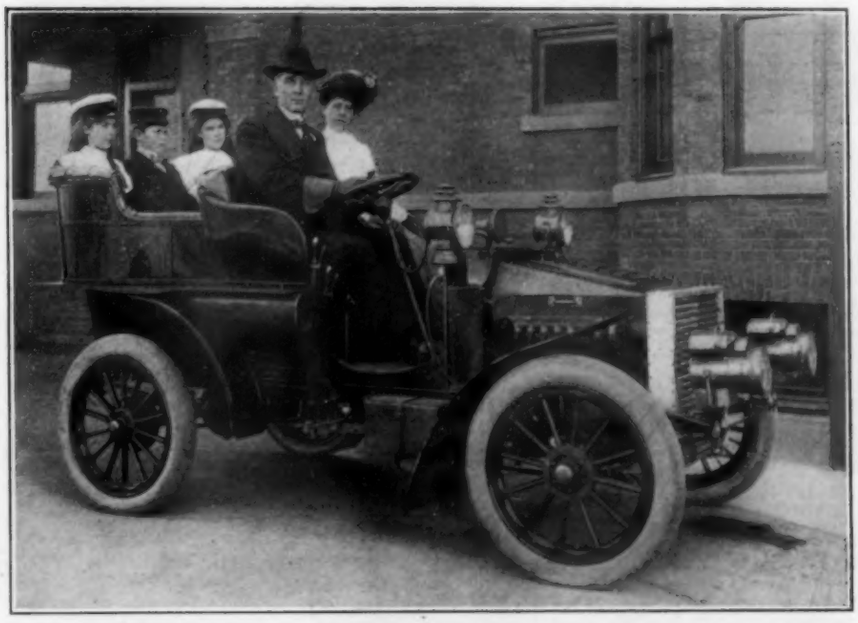
Frank A. Garbutt, of Los Angeles, Cal., an amateur automobilist, in no way connected with the automobile industry, has won the reputation of being one of the best drivers on the Pacific Coast during the past season by repeatedly defeating professional operators on the track and breaking coast records on the track and the road.

Early in April last Mr. Garbutt purchased one of the new White touring cars, and after using it for a month, decided to enter the Los Angeles automobile race meet on May 9. He enlisted the aid of a local tinsmith and together they designed and built a wind shield to replace the engine hood when the car was stripped for racing, as shown in the smaller of the accompanying pictures.

On the day of the races Mr. Garbutt drove his steamer to the line stripped of its tonneau and rigged with the improvised wind splitter in place of the hood, but with gears unchanged and the car otherwise in touring condition.

In the first race of the day, two miles for cars of 1,500 pounds and under, he slowed a little at the turns and was beaten by Walter Grothe in another White car, but the experience was valuable and in the next race, the five-mile free-for-all, Mr. Garbutt not only won but also established a new record for the distance and drove the fourth mile in faster time than an automobile had ever traveled west of the Mississippi. In the three-mile race he again finished well in front.

WHITE CAR WITH WIND SPLITTER.



FRANK A. GARBUTT AND FAMILY, OF LOS ANGELES.—Starting for a Tour.

In the summer he added to his reputation as a clever motorist by his good driving in several minor competitions and by his successful completion of a number of long and arduous tours in creditable time without accident.

At the Del Monte race meet, held last month, Mr. Garbutt won the five-mile open and the five-mile race for 20-horsepower cars and under, and on the following day was second in the hill-climbing contest.

After the carnival was over, he removed the windshield from his car, replaced the tonneau, and with his wife and children in the car, drove from Del Monte to Oakland in close to record time.

Mr. Garbutt is a prominent and wealthy resident of Los Angeles, where he has large real estate holdings and is actively identified with several industrial enterprises, being a director in the Union Oil Co. of California, president of the Loma Oil Co., of Los Angeles, and chairman of the executive committee of the California Industrial Co. As an enthusiastic motorist, Mr. Garbutt is vice-president of the Automobile Club of Southern California, an organization recently organized exclusively for amateur owners of motor vehicles. He is also a member of the California Club of Los Angeles, a social club holding a similar position on the Pacific Coast with that of the Union Club in New York.

Oldfield Rides at Toledo.

Barney Oldfield attempted to break the existing mile record for a half-mile track at Toledo, O., on Thursday of last week, but it is said that "owing to darkness and the unsatisfactory working of his car, etc.," the time was slow. Oldfield went the first half in :44 1-2 and the mile in 1:30, this being the best mark of his afternoon's driving.

AUTOMOBILE PARADE HELD IN COLORADO SPRINGS, COLO., EARLY LAST MONTH.—Cascade Avenue, Mountains in Background.

THE AUTOMOBILE

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SATURDAY, OCTOBER 3, 1903.

CLUB CONSOLIDATION.

The formation by the automobile clubs of New York State of a consolidated organization is without question the forerunner of similar moves on the part of motor clubs in most of the other important States. There is much to be done everywhere in the way of defensive work against hostile legislation, and still more for the promotion of road improvement. It is only by constant vigilance, concerted action, and the weight of numbers that things can be accomplished in the way of legislation, and the associated clubs can with ease do far more than their individual members would dare attempt.

The organization of the State association into the American Automobile Association is a step made necessary both by the need of effort for uniform State regulations as to speed and licensing and by the national aspect which good roads agitation is beginning to assume. A central control of the work done by the several State or local organizations will save a great deal of confusion and wasted effort.

It is much to be hoped that the way will before long be open for a consolidation of the A. A. A. and the American Motor League. Divided, and especially if rivals, they will almost inevitably work at cross-purposes, to the serious loss of both. United, they can join hands and accomplish a great deal that urgently needs to be done. Cannot a common meeting-ground be found for both?

TIRE STANDARDS

The recent determination of the tire makers, to guarantee no tires unless fitted to machines which do not exceed a schedule of weights fixed by them, is in line with previous steps looking to the adoption of standard rim sections. Both measures, while adopted primarily in the interest of the manufacturers, will be found to work to the advantage of the consumer as well. Without standard rim sections, strictly adhered to, interchangeability of tires can be but imperfectly secured. If users are to be allowed to overload their tires, the makers cannot afford to guarantee them.

The new restrictions will work no hardship to those whose tires are not too small, for the schedule referred to does not depart materially from present accepted practice. On the contrary, by removing the temptation before builders, especially of the popular-priced cars, to save cost at the expense of the tires, it will relieve the user of one vexatious source of annoyance. The tire makers have been liberal in the matter of replacements, but with the passing of the experimental period it is not too soon to insist on standard conditions of use.

One vital factor in tire durability is not yet taken account of, possibly because it cannot be. It seems to be well settled that the speed of an automobile has as much to do with the life of the tires as its weight. Light three-inch tires may do for a 1,200-pound machine with a 9-horsepower engine, but they would meet with speedy disaster on a racer with double that power. If the thing could be done, it would doubtless be most satisfactory to determine the tire sizes by the product of the car's weight and speed, but before this can practically be accomplished it may be necessary to wait for further standardization in automobile design.

NOTES ON THE RUN ENTRIES.

Some reflections of interest are suggested by a study of the table of entries for the Endurance Run, on another page. In the matter of price, the tradition of "a dollar a pound" still holds good for the middle class of machines. In the higher class, and especially in the French type of car, the price goes up considerably, and bears but a limited relation to the weight. In the runabout class, on the other hand, there is a marked tendency to combine strength and low cost by the mere addition of metal, so that this class, which logically might be supposed to show the highest ratio of cost to weight, exhibits in fact precisely the opposite condition. It may be inferred that the fact of its greater cost is a more serious obstacle to the success of the French type in runabout sizes than in the heavier machines.

The complete disappearance of the single-tube tire is noteworthy, and fully bears out the predictions of the best observers a couple of years ago. It used to be charged against the double-tube tire that it punctured so much more readily that the gain in cost of repair was largely lost. As tire troubles are penalized like any others, it is evident that the contestants in the present run do not share this view.

More surprising is the almost equally unanimous preference for the jump spark. That the weight of argument is in its favor has for the most part been conceded, but in view of the stout fight put up by advocates of the low-tension system, and its undeniably greater electrical simplicity, one can only infer that public education in electrical matters has been proceeding with unsuspected rapidity. With electrical pros and cons balanced, the system which is mechanically the simpler will of course prevail.

The appearance of but one maker of steam vehicles in the list is to be taken as indicating, not that steam is out of the running as regards touring, but rather that it is in a transition state, from which only the maker referred to seems to have fully emerged. A simpler generating system and greater fuel economy than the conventional design affords must be found, and no doubt will be before long.

Inferences as to the average piston speed cannot safely be drawn from the data given, since it is altogether probable that many of the lighter cars are geared lower than their standard equipment, in view of the difficulties of the course. This will be noticed particularly in one or two cases in which the motor speed is given as near its maximum at twenty miles per hour, while the machines in question are well known to be able to do much better on reasonably good roads.

REVENGE IN DETROIT.

Another story, pleasing or disquieting according to how one views it, comes from that perennial source of both sorts of stories—Detroit. This time it is about a Detroiter who bought an automobile of a local dealer and couldn't make it go. Various parts, according to the story, broke, and the dealer refused to replace them. After many repairs which did not last, the dealer still maintaining his recusant attitude, the disgusted owner affixed to his purchase a placard reading: "This is a Blank car and it won't run." Then he hitched a pair of faithful Dobbins to the front axle, grasped the reins and the steering lever and started on a round of the business districts.

When the dealer heard what was going on, he tore his hair and sent a messenger entreating peace. But there was no peace, not just then; and it was not till another circuit of the procession had brought the dealer himself, humbled and repentant, to beg the privilege of replacing the balky machine with one guaranteed to

run, that the war-clouds were dispelled and the sun of peace smiled again.

Now, if all this had happened in Chicago, let us say, the recital would bring joy to the hearts of many would-be owners, and dismay to at least a few vendors of the sometimes reluctant auto. But in Detroit —well, doesn't it possibly go to show that, to the Detroiter, the horse (like the cow) is a much more tractable beast than the auto? And wouldn't those who meditate following his example do well to take counsel with themselves and consider how far the same may be true of them?

Last year we waited fully a month longer for such cool weather as we are now having. The question of temperature is sometimes a serious one for operators and others compelled to stay in their machines the greater part of the day, and it is to be hoped that the present hints of the mercury will not be lost on any one engaging in the Endurance Run.

In an article on "tricks" of horses, in a recent issue of the *Saturday Evening Post*, a sensible suggestion is made for leading a horse past an object which frightens him. According to the author, David Buffum, the man who grasps both reins close to the bit, and edges sidewise past the object in question, patting or "soothing" the animal meanwhile, nearly tells the horse that there is something for him to be afraid of. The right way is to grasp the near rein a foot from the bit and walk straight ahead, without noticing either the horse or the object of his terror. In nine cases out of ten the animal will follow without resistance. Under no circumstances should he be allowed to face about and retreat before passing. If he does this the first time, it will be next to impossible to cure him of his fear later on.

The growing popularity of the four-cylinder motor among makers and users does not indicate a better appreciation of its theoretical advantages, which have been admitted from the first. Rather is it a concrete sign that the practical drawbacks which caused the early preference of the single-cylinder motor are being eliminated. These, of course, are summed up in the word "unreliability." So long as motors could not be depended upon to "mote," the fewer the cylinders the better, particularly in view of the fact that small cylinders can never function as perfectly as large ones. To-day, however, the motor and tributary parts give as little trouble as anything about a car; and when a break-down must occur it is much better to confine it to one cylinder out of several than to have the whole motor tied up.

Improvement on the Hand Car.

A railroad automobile passed through here on Saturday. It was quite a contraption of its kind and beat pumping a hand-car all to pieces.—*Brook (Ind.) Reporter.*

Chicago-New York Relay Record Run.

Special Correspondence.

CHICAGO, Sept. 28.—Bert Holcomb and Laurie Duffie, employes of the Electric Vehicle Co., Hartford, Conn., assisted by three competent chauffeurs, left Chicago this morning to attempt to establish an automobile record between Chicago and New York, using a 24-horsepower Columbia gasoline touring car. Holcomb and Duffie, accompanied by Dave Adams, of Hartford, and Harry Sandol, of New York, two assistants, had driven over the route from New York in the car to be used on the return trip, reaching Chicago last Friday.

The plan is to attempt a continuous trip, running night and day, and it is expected that the 1,013 miles can be covered in fifty-four hours elapsed time. According to the schedule, Mr. Holcomb, accompanied by a competent Chicago chauffeur, is to drive from Chicago to Cleveland, 350 miles. At Cleveland the car is to be taken in charge by Mr. Duffie, accompanied by David T. Adams, while Holcomb will board a train, secure what sleep he can until reaching Corning, N. Y., 685 miles from Chicago. At Corning, Holcomb is to relieve Duffie, and, with Harry Sandol as his assistant, complete the trip in the car. The men were selected for the task on the strength of their ability and trustworthiness. The trial is to be made with consistent regard to the safety of the operators, the car and the public, and the result, it is hoped, will demonstrate the practicability of the automobile as an agency of quick transportation over ordinary highways for long distances.

The car left Chicago at 4. A. M., on Monday, with Holcomb at the wheel, and arrived at Elkhart, 129 miles, at 9.40 A. M.; Waterloo, 194 miles, at 1.10 P. M., and Toledo, 296 miles, at 6.30 P. M. Cleveland, 422 miles, was reached the next morning at 3.40 A. M., and there Holcomb and his Chicago assistant were relieved by Duffie and Adams, Holcomb taking a train for Corning, N. Y. Duffie did not cut out the running as well as Holcomb, however, and made rather slow time to Erie, 528 miles, reaching there at 10 A. M.

Duffie arrived in Buffalo, 626 miles, at 3.25 P. M., Western time, and left at 5.25 P. M., Eastern time, spending an hour in the Bison City. Duffie was now thoroughly warmed up and shoved the big car along in fine style, reaching Corning early Wednesday morning with everything in good shape.

Holcomb now took charge of the car, with Sandol as his assistant. Binghamton was reached at 10.45 A. M., and a stop of three-quarters of an hour was made for adjustments to the car and for luncheon. Kingston on the Hudson was reached at 9.00 P. M., and left behind fifty-five minutes later. Then Holcomb lost the way in the dark and the fog, and during the next six hours drove more than 100 miles out of his way in New Jersey, coming in to New York by way of Suffern and Paterson. The car arrived in New York, 1,177 miles, at 9.00 A. M. on Thursday

The total elapsed time for the run was seventy-seven hours.

N. A. A. M. ENDURANCE RUN STARTS OCTOBER 7.

Forty-two entries have been received for the N. A. A. M. endurance run from New York to Pittsburg, which it has been finally decided will be started on Wednesday, October 7, the date originally selected, instead of on October 6, owing to the abandonment of the race meet at Pittsburg. The cars will rendezvous at Weehawken, N. J., early on Wednesday morning and will be sent away, beginning at 7 o'clock, in the order in which they are weighed in on the previous day, at official garage No. 1, the New York Transportation Co., 49th Street and Eighth Avenue, N. Y.

With the probable exception of two cars, it is understood that all the vehicles entered will be on hand on the scheduled date, ready to participate in the arduous proceedings of the following week. The Peerless Motor Car Co., of Cleveland, has notified the association that the two Peerless cars, officially known as 7 F and 8 F will not start. Manager Miles, of the N. A. A. M., is making every effort to urge the Cleveland company to a reconsideration of this decision.

The details of the cars entered are contained in the table on page 350.

The change in the date of starting the run will delay the schedule one day throughout the contest. Sunday, October 10, will be spent in Buffalo, therefore, instead of in Erie, Pa., as was the previous intention, and the vehicles will arrive in Pittsburg on October 15.

Buffalo Club to Entertain.

Special Correspondence.

BUFFALO, Sept. 28.—Arrangements are practically completed for the entertainment of the participants in the N. A. A. M. endurance run, who will be in Buffalo on the evening of Saturday, October 10. The board of governors of the Automobile Club of Buffalo appointed Frederick J. Wagner, H. M. Poole, George S. Metcalfe, Dr. Lee H. Smith, Charles Clifton and E. F. Hall on a committee to make arrangements for the reception of the contestants. The entertainment will probably consist of an open house to the members of the club and all visiting clubs and the participants in the run, at the Ellicott Club, in the evening, with light refreshments and speeches.

CLUBLAND

DRAFTING CONSTITUTION FOR THE N. Y. ASSOCIATION OF CLUBS.

Special Correspondence.

BUFFALO, Sept. 28.—William H. Hotchkiss, of this city, who is chairman of the committee on permanent organization appointed at the preliminary meeting held in Syracuse on September 14, last, in the matter of perfecting the organization of the New York Association of Automobile Clubs, is hard at work drafting a constition for the same. The committee comprises representatives of all the automobile clubs in the State except the Syracuse Club.

Chairman Hotchkiss has sent a circular letter to all members of the committee asking for suggestions, to the end that the constitution may meet with general approval and be adopted without serious discussion. These suggestions are now being received and will be followed in framing the constitution. The only serious point of disagreement is the matter of representation, but it is hoped some compromise will be arrived at that will be generally satisfactory.

It is expected that the constitution will be adopted by the various clubs and the organization completed by the election of permanent officers, not later than the first of November. When this is done, the plan is to have the clubs, as clubs, and the members, as individuals, elected members of the American Automobile Association and to have that body at once recognize them as a sort of State division of that association. The general result will be a national body. One of the first steps of the new State organization will be to plan a campaign looking to rational legislation at Albany next winter.

A. C. A. JOINS THE STATE ASSOCIATION OF AUTO CLUBS.

Special Correspondence.

SYRACUSE, Sept. 28.—President Hurlburt W. Smith, of the New York State Association of Automobile Clubs, has received notice from the Automobile Club of America, that at the meeting of the Board of Governors of that body held in New York on the evening of September 22, it was voted to join to the State Association. At the same time, the governors chose First Vice-President W. E. Scarritt to represent the Automobile Club of America on the Plan and Scope Committee of the State organization and his appointment has been made permanent by President Smith.

Besides Mr. Scarritt, the committee has been appointed as follows: Judge William H. Hotchkiss, of the Automobile Club of Buffalo, chairman; Lee Richmond, of the Rochester Automobile Club; W. Waite, of the Auburn Automobile Club; W. Bechle, of Utica; E. R. Paige, of Albany, and A. R. Pardington, of the Long Island Automobile Club. The first meeting of this committee will be held in this city in the near future to outline a plan of action for the State Association A condition imposed by the Automobile Club of America in consideration of its joining the State Association was that the members of the latter should also become a part of the American Automobile Association, which the State Association had voted to do at its meeting here September 12.

The Automobile Club of America is the last of the prominent organizations of New York to join the State Association, and the success of the latter organization is now assured. With the enrollment of the New York Club, the State Association becomes the strongest organization of its kind in the country. There are now more than 8,000 registered automobilists in the Empire State, and it is argued that before winter comes the N. Y. S. A. A. C. will be in a position to swing 10,000 votes one way or another in behalf of just legislation.

A. C. A. COMMITTEE ON CANDIDATES FOR NEXT YEAR.

Candidates for the annual election of the Automobile Club of America, to be held the first Monday in November, will be nominated by a committee of three appointed at a recent meeting of the Board of Governors. The committee is made up of G. F. Chamberlin, representing those now in office; S. T. Davis, Jr., representing the manufacturers, and H. R. Winthrop, representing the general membership. Abert C. Bostwick resigned from the Board of Governors. It was voted that the club join the New York State Association of Automobile Clubs when that organization becomes affiliated with the American Automobile Association, a combination now practically assured.

The following were elected to membership in the Automobile Club of America: Life member, W. C. Temple, Pittsburg, Pa.; active members, Ernest Grosbeck, P. F. Collier, H. P. Rollins, P. D. Martin, C. G. K. Billings, Hugh J. Grant, Lyman Delano and Charles E. Miller.

The Wachusett Club Run.

Special Correspondence.

FITCHBURG, Mass., Sept. 28.—The Wachusett Automobile Club held a run to Wayside Inn, Sudbury, Mass., last Saturday. Some of the members left Fitchburg at 9.30 A. M. The first control was at Leominster, five miles out, where the rest of the club members, resident in that town, joined the party. A stop was made at Stow and gasoline procured for those who wished it. Dinner was served at Wayside Inn about noon, after which a business meeting was held and the return trip begun. The distance covered was thirty-six miles each way. The following participated in the run: L. H. Greenwood and wife, of Gardner, Mass. (Knox); H. E. Jennison and wife, Fitchburg (Stanley); Chas. B. Smith and wife (Knox); Dr Mossman, Westminster (St. Louis); E. M. Chase (Knox); W. D. Holman (Stanley); Zadoc L. White, Winchendon, Mass. (Winton touring car); F. G. Smith, Leominster (White tonneau).

Speed Demonstration for City Officials.

Percy P. Pierce, a member of the Automobile Club of Buffalo, in connection with the club's run to Niagara Falls, on September 19, drove his Arrow car from the Gates Circle in Buffalo, to the International Hotel at the Falls, in 38 minutes, having as passengers Mayor Knight and Superintendent of Police Bull, of Buffalo, and Frank W. Hinkley, the mayor's secretary. The officials were guests of the club. Superintendent Bull expressed a desire to get a first-hand idea of automobile speed, and his wish was gratified, much to his and the mayor's embarrassment, since the distance covered is at least eighteen miles, and Buffalo has an ordinance that restricts the speed of automobiles to eight miles an hour.

Whitman and Hammond Drive to Maine.

L. L. Whitman and E. T. Hammond, the Oldsmobile transcontinentalists, not satisfied with delivering their message from the mayor of San Francisco to the mayor of New York, continued on up through Connecticut and Massachusetts to Portland, Me., arriving there on Wednesday of last week, and thus earned the distinction of being the first to drive an automobile from California to Maine. The trip from New York to Portland was made without incident, and immediately upon their arrival Mr. Whitman had the little car shipped back to the Oldsmobile Company's New York headquarters to be put in shape for the endurance run to Pittsburg.

Cannon Makes Steam Records.

George C. Cannon, in his steam racing car, broke two world's records for steamers last Saturday afternoon on the Narragansett Park track at Providence, R. I. He cut the mile record of 1:02 4-5 down to 1:01, and, after a rest of half an hour went out for the five-mile record of 6:05, established by himself last year. and brought it down to 5:56 3-5. The miles in this trial were driven respectively as follows: 1:13 1-5. 1:11 2-5, 1:12 1-5, 1:11 3-5, and 1:08 1-5.

Needs Plenty of Room.

Another automobile has come to Byron. John Crawford is the owner. When John is out on a spin no common craft should hamper his motion. A wide berth will be the safer course for competitors.—*Vernon (Mich.) Argus.*

INDUSTRIAL

GENERAL AUTOMOBILE AND MFG. CO. AFFAIRS TO BE WOUND UP.

Special Correspondence.

CLEVELAND, OCT. 3.—The General Automobile & Mfg. Co., which for a month or more has been in the hands of L. J. Hammond as receiver, has been declared bankrupt and there is now little probability of the concern being reorganized. Appraisers are at work and as soon as a thorough inventory has been made, all the assets will be sold for the benefit of the creditors. Charles A. Scott, who represents the receiver in charge of the plant, states that there are about twenty-five cars in various stages of construction which will be finished. The remarkable demand for automobiles at bargain prices is demonstrated by the fact that since the receiver has been appointed, hundreds of offers to buy the cars and material on hand have been received; hence little difficulty will be experienced in closing out the business. Mr. Scott showed the writer letters of inquiry from Egypt, Brazil, New Zealand, Victoria, Italy, Holland, Germany, Canada and Mexico.

MARKET FOR AMERICAN RUNABOUTS IN GERMANY.

United States Consul-General Hughes, at Coburg, Germany, in a report to the State Department, writes that there is room for American automobiles of the runabout type in Germany. He says;

"Small automobiles or runabouts of American make, of from 6 to 10-horsepower would, I think, have a good sale in this district. So far, only one American company has ever asked for information as to the real class of machines wanted—though some fifty have sent English catalogs, which are worse than useless, as the people will not even look at them. What is wanted is a light machine, easily worked, with good brake power, as it is very hilly here, and above all, a machine that is not too expensive. I should advise the opening of a small depot either here or in some neighboring city where the cars can be shown and where duplicate parts can be quickly procured. This latter is a very important matter, as German makers do not care to repair foreign (especially American) machines if they can possibly help it."

New Factory for Baker Company.

W. C. Baker, of the Baker Motor Vehicle Company, states that the company will undoubtedly build a new factory in Cleveland for the coming season. Early this spring the company purchased a tract of land on the Lake Shore & Michigan Southern Railroad tracks on the West Side, and immediately joining the property on which the American Ball Bearing Company is now erecting its factory. This gave rise to the report that the Baker Company would also build at once, but it appears the property was purchased for future requirements. The indications are that the present factory equipment will be unable to take care of the requirements another season. It will be the aim to build about 400 vehicles another season, which is about double the output for this year.

F. B. STEARNS COMPANY JOINS THE LICENSED ASSOCIATION.

The F. B. Stearns Automobile Co., Cleveland, was elected to membership in the Association of Licensed Automobile Manufacturers, on Monday, September 28. The Association now includes twenty-seven manufacturers of gasoline automobiles, and one maker of automobile and launch motors, a total of twenty-eight members.

Previous to the admission of the Stearns company, the Buffalo Gasoline Motor Co., was the last concern elected to membership in the association. At that time much surprise was felt in trade circles because the terms of the A. L. A. M. membership contract would seem to preclude the Buffalo Gasoline Motor Co. from continuing the business of manufacturing and selling gasoline motors, excepting to licensed automobile makers, all of which are known to manufacture their own motors. This apparently anomalous condition of affairs is explained by the report that the Buffalo company is to discontinue the manufacture of gasoline motors, devoting itself, in future, to the construction of complete cars.

Spaulding Affairs Wound Up.

Special Correspondence.

BUFFALO, Oct. 3.—The final hearing in the bankrupt case of the Spaulding Automobile and Supply Co. was held recently before Referee in Bankruptcy William H. Hotchkiss. The referee wound up the affairs of the concern, whose executive officer was the late Henry Spaulding, who was drowned recently in an accident with his automobile in the Erie Canal at Canajoharie. Referee Hotchkiss declared some allowances to creditors and announced a fractional dividend amounting to about 3 per cent. With the dividend of 10 per cent which was declared some time ago, the total returns to the creditors of the concern amount to between 13 and 14 per cent.

The unusual number of 201 claims by one concern was allowed by the referee to the Conrad Motor and Carriage Co. There was a lively time over the selection of trustees for the affairs of the Spaulding concern, which resulted in a compromise by which Thomas E. Lawrence withdrew in favor of W. J. Hayes.

Meteor Stock and Materials Bought.

E. S. Youse, 46 North 5th Street, Reading, Pa., the automobile dealer, has purchased the stock and fixtures of the Meteor Engineering Co., of that city. The purchase consists of all the finished and raw materials, all the blue prints, drawings, patterns and gigs, as well as much of the machinery and special tools. The rest of the machinery was sold at auction September 14.

The Meteor Company, which made the Reading and Meteor steam cars, still has on hand fifteen completed automobiles of its latest production. These will be sold off as soon as possible and the company will wind up its affairs and go out of business.

As Mr. Youse has bought all the drawings, patterns and jigs for all parts of the Reading steamers, formerly made by the Steam Vehicle Co. of America, as well as the Reading and Meteor cars produced by the Meteor Company, he will continue to furnish parts for these cars.

Medals for Page and Grosso.

As a token of appreciation of the excellent performances of Henri Page and Laurient Grosso at the Empire City track automobile race meet at Yonkers, N. Y., on July 25, each of these drivers was recently presented with a heavy solid gold trade metal. It will be remembered that Page, on his 40-horsepower Decauville, secured second place in the ten-mile open,

while Grosso, on O. W. Bright's 60-horsepower Gordon Bennett type Mercedes, broke the fifteen-mile world's track record. These cars were both fitted with Continental tires, the product of the Continental Caoutchouc Co., the extensive German tire concern which presented Page and Grosso with the medals referred to, one of which is shown in the accompanying illustration. These medals bear facsimiles of the Continental trademark.

James B. Leppo has filed a petition against the receiver for the Shelby Motor Car Co., of Shelby, Ohio, which was declared bankrupt a short time ago. The plaintiff claims he executed a writ of assignment of a certain application for a patent on a steering column for an automobile, the consideration being the payment of royalites by the company.

Blue Pencil Shavings.

There are estimated to be more than 2,000 automobiles in the city of Denver.

Robert Tarrant and Charles De Friest, of the Chicago A. C., are touring Michigan in a Cadillac.

Baldwin Chain Mfg. Co., of Worcester, Mass., is now placing in the market a full line of gears for motor cars.

Creditors of the Central City Automobile Co., of Syracuse, N. Y., have applied to have a receiver appointed for the company.

C. S. Henshaw, New England representative for the Thomas cars, now has a salesroom in the Columbus Automobile Exchange, Boston.

Burglars entered the Buffalo, N. Y., store of the Hartford Rubber Works Co., and carried away $500 worth of tires on Wednesday night last week.

H. H. Hawkins, of the Geo. N. Pierce Co.'s factory, has been engaged by the Automobile Headquarters, Boston, as city salesman for the Pierce motor cars.

The General Electric Co., owner and manufacturer of the Lemp steering check, has moved its offices from 200 Summer Street, to 84 State Street, Boston, Mass.

The general offices and factory of the American Roller Bearing Co., formerly located at 51 Binford Street, Boston, have been removed to South Framingham, Mass.

Judge McLean, of New York, has granted a motion by default for the appointment of a receiver for the Westchester Automobile Co., 523 Fifth Avenue, New York.

The Oscar Lear Automobile Company has been incorporated at Columbus, O. The incorporators are Oscar Lear, E. J. Miller, B. W. Gilfillan, W. Guy Jones and W. H. Halliday.

The National Automobile & Motor Co., Milwaukee, Wis., has filed a petition in bankruptcy. Its debts are scheduled at $8,653 and its assets at $6,788.56. The unsecured claims amount to $5,332.25.

The Victor Auto Storage Co., Montgomery and Washington Streets, Jersey City, capital $10,000, has been incorporated by R. L. Coleman, James R. Kirk, Patrick W. Haradon, V. J. Vashon and Paul Walter.

Arthur Ecksten, formerly with the Chicago office of the Locomobile, has been appointed general manager of the Sandusky Automobile Co., Sandusky, Ohio. He left Chicago last week to assume his new duties.

Norris M. Mason, manager of the New York branch of the Société Franco-Americaine d'Automobile, has been directed to sail for Paris on November 10, to assist in the preparation of the exhibit of Clement, Panhard and Renault cars for the Paris show in December. Special bodies are now being built for the show cars by Rothschild and Labourdette. After the Paris show the exhibit will be shipped here for display at the New York show in January, and later at the Louisiana Purchase Exposition in St. Louis.

Miss Falconer is to make an attempt to establish a series of records for women drivers at the race meet at Empire City track at Yonkers on Saturday. She will use a White touring car, stripped of tonneau.

The Pittsburg branch of the H. W. Johns-Manville Co., has, on account of increased business, secured larger quarters by taking the adjoining property, and now occupies the entire building at 218-220 First Avenue.

Irving L. Atwood and Frank H. Bowen have purchased the interest of Dr. H. J. Linn in the firm of Babcock & Linn, who conduct a garage at 941 Eighth Avenue, New York. The new firm will be known as Babcock, Atwood & Bowen. Dr. Linn will retire from business.

The American De Deitrich Motor Car Company has been incorporated with $100,000 capital. The directors are R. E. Jarrig, Louis Frankel and Albert Lamaitre. Headquarters will be opened in New York in an elaborate establishment to be known as the De Dietrich Club.

G. W. Dorsey, of Cleveland, was in Omaha recently with the object of selecting a suitable location for a new automobile establisment which he proposes to build soon. It is understood that Mr. Dorsey contemplates an investment of about $50,000 in the business.

Thomas B. Jeffery & Co., of Kenosha, Wis., manufacturers of the Rambler automobiles, have leased the store at 304 Wabash Avenue, Chicago, and the store was opened last week (Thursday) under the management of J. F. Gunther, who was for many years the manager of the Chicago store of Gormully & Jeffery.

E. R. Russell, formerly with the Electric Vehicle Co., of Hartford, and until recently superintendent of the factory of the Vehicle Equipment Co., of Brooklyn, N. Y., has succeeded Mr. R. Janney as superintendent of the Locomobile Co. of America, at Bridgeport, Conn., Mr. Janney having resigned to accept a position with the Edison Company in New Jersey.

As the star event of the automobile race meet to be held at the Empire City track this week, Saturday, the management has arranged a three-cornered match race at ten miles between C. B. Chisholm's 40-horsepower Decauville driven by Henri Page; the 24-horsepower Packard Grey Wolf driven, perhaps, by its designer, Charles Schmidt, and a 40-horsepower Darracq, driven by F. A. La Roche. Five other events, including the Empire Handicap, for which eight entries have been received, compose the program.

The Automobile Club of St. Louis, is now fostering an association to be known as "The Automobile Club of St. Louis Legal Defense Association." The purpose of this association is to adjust claims and defend suits against members of the association resulting from any alleged damages to persons or property caused by them in the use of automobiles.

The Locomobile Company of America has entered for the endurance run the same gasoline car which won a first-class certificate in the New York Boston run last year. Up to the 22nd inst. it had entered no other. This particular car, which has been in constant use ever since the last reliability run, is estimated to have been driven an aggregate of 20,000 miles.

Henry Murch, operator for the Iver Johnson Sporting Goods Co., took the Massachusetts State Highway Commission out in a Cadillac tonneau last Saturday to inspect the sections of State road in process of construction. The route was through Gardner, Otter River and Baldwinville, a distance of twenty-five miles, over rough roads. The trip was made in one hour.

Foster Company, of Cleveland, agents for the Peerless, General and other cars, have abandoned their quarters on Prospect Street and will not have a store this winter. But plans are being prepared for a fine garage which will be erected on Prospect in time for the opening of the spring trade. Mr. Foster is figuring on handling several new lines and hopes to retain the Peerless agency.

The contract for supplying 1,500 electric batteries to be used in the electric motor chairs at the St. Louis Exposition in 1904, has, according to advices from Cleveland, been awarded the Willard Storage Battery Company, of that city. The batteries to be applied to this purpose are, of course, of much smaller size than those used in ordinary electric carriages, and embody several new and interesting features in their construction.

The Alden Sampson Co., of Pittsfield, Mass., which began the construction of automobiles in the early summer, is planning to increase its facilities by the erection of a large new building and the installation of a lot of new machinery for special automobile work. Mr. Sampson, who is a large stockholder in the Moyea Automobile Co., of New York, recently took the contract for the building of seventeen touring cars, and is planning to have the company move its plant to Pittsfield. The Moyea Company has secured the American patent rights for the manufacture of the French Rochet-Schneider cars, and it is probable that these cars will in future be built in Pittsfield.